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Galaxy

Science Fiction

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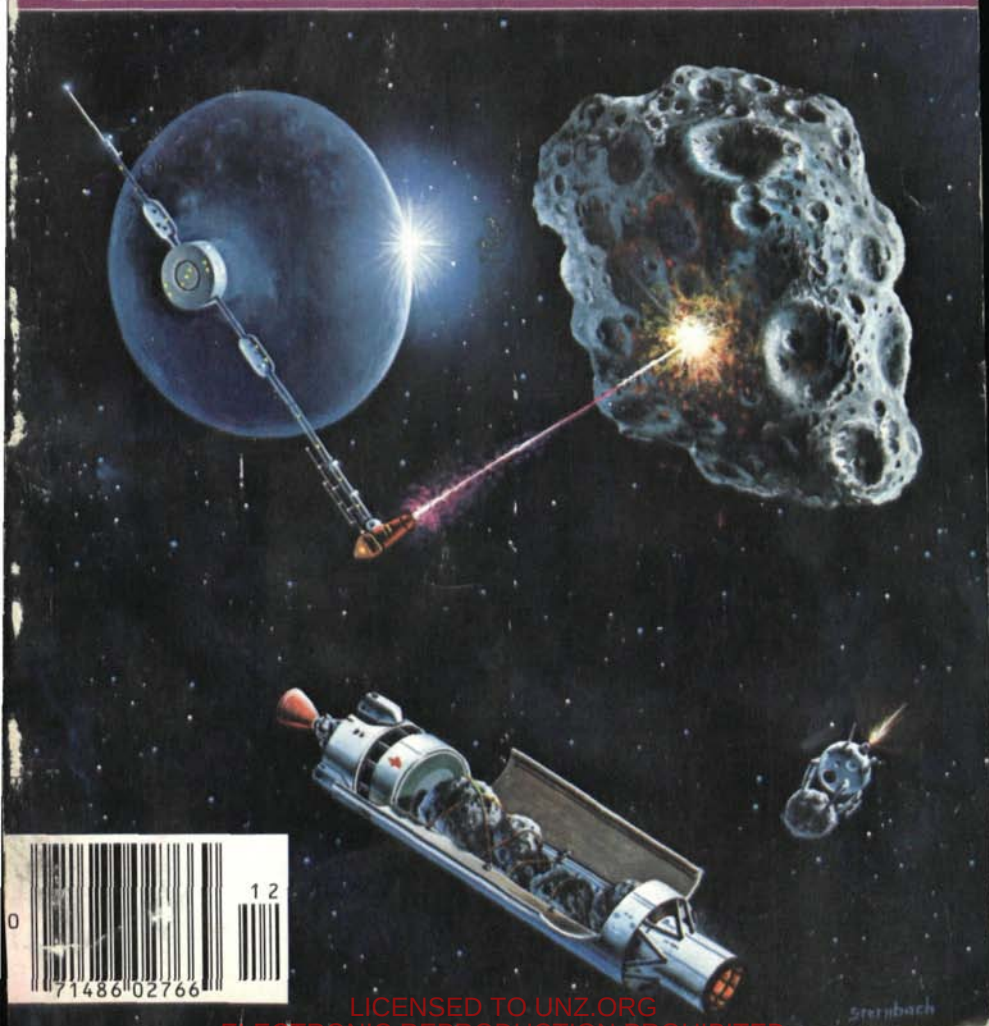

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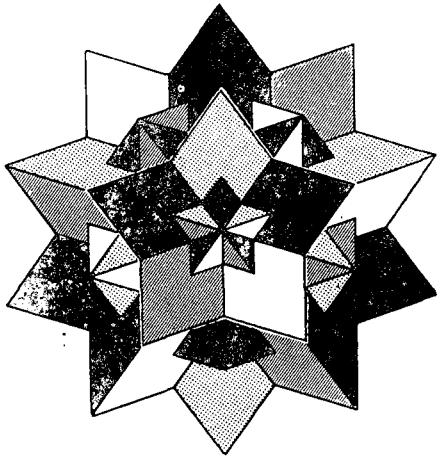

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DECEMBER 1976
Vol. 37, No. 9

Galaxy
SCIENCE FICTION
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NOVELETTES

CAGES, J.M. PARK 26
A tale of shipwreck, survival. . .and a cold and bitter seduction. A Galaxy *First.*

THE ROCK AND THE POOL, Stephen Tall 130
The Rock, the Pool, and the People: together they had formed a closed eco-system from time immemorial. Now all that would change. . .

SHORT STORIES

CHANCE MEETING NEAR ARARAT
Eric Vinicoff & Marcia Martin 7
They were late for Ragnarok, yet still they would find time to deal with the little alien—one way or another!

THE EARTH DWELLERS, Nancy Kress 18
And the meek shall inherit the Earth. . .

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SERIAL (PART II of III)

GATEWAY, Frederik Pohl 55
Robinette Broadhead had won a lottery. His winnings were sufficient to either support him (but not in comfort) for the rest of his life or to purchase a one-way ticket to Gateway, where wealth and fame—or death—awaited. Robinette chose glory. Trouble is, he seems to have used up his nerve in making that choice.

FEATURES

EDITORIAL 4
EPISTLE TO THE CHRISTIANS—Wherein the Editor examines the very first of all the biblical adjurations—and finds it far from fulfilled!

A STEP FARTHER OUT, J.E. Pournelle 44
THAT BUCK ROGERS STUFF—Some say that science and technology have taken the wonder out of life; they are very, very wrong!

BOOKSHELF, Spider Robinson 117
Spider invites you to a Bakkanalia.

SF MART 159
Where to find it.

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A STEP FARTHER OUT

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EDITORIAL

It was recently remarked to me that the conquest of Space offered a challenge *so* vast that the human spirit must quail before it. I disagreed vehemently, on the grounds that while that challenge is indeed infinite, so too are our spiritual resources. I did allow however, that it would take quite literally everything we've got to offer, including, most especially, our religious impulses. In light of the foregoing (and with no little trepidation) I offer an—

EPISTLE TO THE CHRISTIANS

IN EVERY AGE the myths and legends—or sacred truths, if you prefer—of times past must be reinterpreted in the light of new knowledge and beliefs, if they are to remain meaningful for the men and women of that new age. Thus if God indeed spoke unto the Prophets of Israel (and for the moment let us assume that he did), think of all the things He could not say directly, simply because those Prophets, wise as they may have been, were simply not equipped with the knowledge necessary for comprehension. Had He spake unto them of pulsars and planets, Trojan Points and star-probes, He had spake unto them gibberish. It follows that if the Bible is to be as relevant to the Age of Science as it was to the Late Neolithic, its wisdom must be extracted and extrapolated: if God spoke to *us*, He spoke in parables; He had no choice.

Consider in this regard *Genesis 1:28*: "Be fruitful, and multiply, and replenish the earth, and subdue it: and have dominion over the fish of the sea, and over the fowl of the air, and over every living thing that moveth upon the earth." Consider especially the word 'earth.' To a man of 5,000 years ago, the concept that the translators of the King James Version chose to render as 'earth' might have been rendered as well (in meaning, not beauty!) as 'all lands,' 'all ground,' or 'all places where a man can walk.' What it could not have been rendered as is 'Earth' with a capital, or 'this planet'; in 3,000 B.C. the concept was lacking. The modern equivalent would be 'available habitats': places where people can live.

And just what habitats are available to us? Well, Dr. Gerard O'Neil has published a nuts-and-bolts proposal detailing how we can with present

continued on page 158

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WHO ARE YOU?

After lo, these many years of reading GALAXY, you must know by now who we are. The only thing we, however, know about you is that you read science fiction. But now we need to know more about you to continue to bring you the type of fiction—and, incidentally, advertisements—that will interest you. Please fill in the following in as much detail as you can; your time will be well spent and most appreciated.

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2. Age ____

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4. College graduate ____ Degrees ____

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8. What magazines, other than science fiction, do you read regularly?

   _____

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True, the aliens were primitive, but there was something about them...

They doomed themselves in a myriad of ways. Perhaps it was in their nature to seek incompleteness instead of the whole. The rift grew, and led them to use up and foul rather than maintain and enrich.

Not alone did they pass. All else that shared their precious gift they dragged down with them, all but the mean things that evolved or adapted to dwell amid the ruin.

But in their last days, driven by the need for racial continuity that was their ultimate defense against mortality, they constructed me.

No, that isn't exactly right. That which they built isn't I, no more than the protoplasmic casings were they.

They created a final servant. But I am more than that. Did they realize? Did they plan it that way?

I will never know.

THE STARBOW SPREAD colorfully in the forward screen, flattened and stretched by .86 *c*. *Ap Retalia* was decelerating from trans-light velocity—or had been, before spotting the bogie. The bridge was on combat alert; all six Command Level officers were wrapped into their stations.

Captain Reta hung tensely in the central chair of the circular chamber. His tail coiled around the back brace, while his triple-jointed legs were hooked over the side bars. His azure body-fur stood tautly erect. "Well, Rho? Is it a Poorg unit?"

The underCaptain-Astrogation flicked out her tongue negatively. "Not unless it's some sort of trick. For one thing, why would they be way out here in interstellaria poking along at sub-*c*?"

"Who can guess at Poorg motives? We don't even know why they're bent on genocide. Maybe they came out here to commune with the divinity of their choice."

"Not in that ore shuttle!" Rho snapped. "Wrong course, for one thing—it's coming in from the Rim. But more importantly, the drive is something I've never seen before."

"How so?"

"No fusion flare. They can't be baffling it, not at this range. There's a hydrogen scoop up front, but it's material—no trace of a collector field."

Reta's tail tip twitched nervously. "It's taking in interstellar matter, but not for a fusion drive. Why? Let's have a closer look."

Rho's subtentacles played over her board. A new segment of the flowing universe appeared—*Ap Retalia* was running parallel to the bogie, ten thousand tals away and wrapped in its monopole force shield. The bogie was a slender,

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tal-long white tube with a narrow funnel in front and an egg-shape in the rear.

"A particle accelerator," the underCaptain-Engineering barked. Urgath was near reproduction/death age, so old that her pelt was turning blonde. "Very simple, but not much thrust. Fission-powered, judging from the thrust velocity."

Reta relaxed. "Archaic technology. No military threat then?"

"Without our shield the stream of accelerated particles could damage us. Otherwise, no."

"What could it throw at us?"

"Based on their demonstrated technology? You should ask an anthropologist. Fission-bomb rockets, I suppose. Maybe fusion ones too. Laser beams. Microwaves. Nothing serious."

Reta paused for long moments. "Very well. Let's move in and make contact."

All the underCaptains stared at him. He stared back. He knew what was bothering them—it bothered him too—but he had a vague feeling that contact should be made. That was why they made prescience a requirement at Captain's academy.

Skilled subtentacles bent to their tasks; the white ball that was *Ap Retalia* moved toward the bogie, its sub-c engine generating momentum waves that eliminated the sensation of acceleration.

"Scan for electromagnetic transmissions," Reta ordered the underCaptain-Communication. The unspoken corollary was that the First Circle telepath would also listen carefully for mental messages.

"Close to ten tals and hold."

They could make out details of the bogie. The reactor and the crew area had to be in the egg at the vessel's base—the tube was too thin to support them. The particle stream emitted a pale-blue glow.

"I'm getting a transmission!" the underCaptain-Communication exclaimed. "Coherent light, a focused beam aimed at us. Can't understand it, of course, but it does sound like spoken language. Here, listen." Sounds like starth barking emerged from a speakerdisk. "Had to modulate the sound frequency a bit; it was pitched too low for our earslits."

"Proabaly telling us to keep our distance." Reta wiggled his tongue in pleasure—his eating orifice was cartilaginous and immobile. "Keep closing. We'll show them who is in charge here."

Abruptly the screen flared white, then went to black. Moments later the stars and the bogie reappeared.

"Hydrogen fusion explosion," the underCaptain-Weaponry reported tersely. "The alien craft launched a small rocket at us. It detonated in the shield. More coming."

The screen went through more antics, while the underCaptain-Weaponry watched his displays complacently. The ship trembled slightly. "Now they're trying elec-

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tromagnetics. We're counter-phasing; no danger of penetration. Should we blast them?"

"No." Reta felt the decision tear at his sense of duty, but he somehow knew that this mystery had to be solved, not eliminated. "Let's see what happens when the aliens realize they can't touch us."

The bogie tried several other weapons, even swinging around to bring its drive stream to bear. But nothing could penetrate *Ap Retalia*.

The underCaptains were muttering among themselves. Finally Rho said, "Captain, we can't waste any more time here. The Muster is scheduled for 087-11-1844."

"At emergency capability we can easily arrive in time. Compute a minimum-duration flight program."

Rho didn't look happy, but she did as she was told.

Finally the attack stopped and the laser message-beam resumed. Reta ordered the shield softened sufficiently to let the beam through, but kept it on a hair-trigger in case hostilities were recommenced. Then he flipped open his com. "Philology Section?"

"Here, Captain."

"Tie into the alien transmission. Use all the computer capacity you need—you have priority. Communication will send out a similar responding beam to the aliens. If they're this far from home they must be advanced enough to have a computer with a language-translating function."

"I have the course plot," Rho announced. "We can reach the Muster on schedule if we resume deceleration within a twentieth-day. Otherwise we'll overshoot our Jump point."

"Good." Reta felt the pressure of the underCaptainss worry and confusion building. Discipline held their tongues for the moment, but he would have to come up with a good explanation for his actions soon or face a Section Twelve vote by them—legal mutiny.

"Captain, we've tied in our language computer, and the aliens are responding in kind." That was the Philology Section chief reporting through the speakerdisk on the communication board. "Elementary comparatives in the spoken mode are underway."

"Is it making any sense?" Reta asked. The Poorg failure was sharp in his mind. Amorphous creatures from a frigid gaseous giant world, their language concepts had proved too complex for either language computers or philologists to decipher. Perhaps, he thought, if the two races had been able to communicate with each other . . .

"Yes, it is, Captain. Cognitive percentage, 81.5 so far, though that's bound to go down somewhat as we tackle more complex words and grammar."

Reta's tail tip twitched as he waited for the computer to finish learning the alien language. Even at electronic speed the task was a long

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and complicated one. The process was simply an accelerated version of standard translation technique. Images and corresponding words were flashed back and forth. Sometimes several different images were needed to nail down a subtle or abstract meaning, and some couldn't be nailed down at all. But finally a glowing display indicated completion.

"About time," Reta hissed. "Since they chose to give us their language, it seems only right that we should break the shell." He turned to the underCaptain-Communication. "Patch me into the computer channel."

He thought very hard very fast. What was he going to say? First contact, even with such pitifully inferior creatures, was a grave responsibility.

"Go ahead, Captain."

Reta spoke in his own language, confident that the computer would translate his words and relay them to the bogie. "Attention, alien ship. Please acknowledge."

Silence.

Reta leaned out of his chair mike's range. "Am I getting through?" he asked the underCaptain-Communication. The latter nodded.

"You've tested our defenses," Reta resumed. "You know our technology is superior to yours. We can catch you if you try to run. If you don't answer, we'll blow you out of space and get on with our own business."

"Very well. I am answering. What must I do to prevent our destruction?"

The voice had a flat computer vocoder flavor, of course. The underCaptains listened, interested despite themselves.

Reta's tongue flicked. "First of all, identify yourself."

"I am named Japheth."

"Where is your home world?"

"I cannot tell you that. It is security-classified information."

The underCaptains hissed with amusement. Calculating the location of the alien's launch point would be a simple thing for the computer, working back along its course until a solar system intersected.

Reta moved to the point of his main curiosity. "You're from the Rim, and a younger civilization than ours, as shown by your prehistoric ship. What is the purpose of your flight?"

"That too is security-classified."

"Why?"

"To prevent that purpose from being jeopardized."

"It's a hostile mission then?" Reta pressed sharply.

"No. It has nothing to do with your race, or any race other than our own."

"If you don't explain, my own security problem will force me to destroy you."

"I realize that. I will do anything I can to prevent my destruction, but I can't reveal my mission."

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"Why not?"

"I have instructions from those who gave me my task. I can't deviate from them. I am sorry. But I assure you again, I and my mission are no threat to you or your race. Can't you simply accept that, and resume your own errand?"

"Stand by," Reta hissed angrily, then flipped off his mike.

"Defecating waste of time," Urgath muttered. "That alien must be some kind of fanatic; it'd rather die than talk."

"Indeed—and that doesn't make sense." Reta was whispering half to himself. "A pre-starflight technology nonetheless launches a starship. Why? Exploration? Curiosity? No, that ship had to have been a tremendous effort to construct. Its mission must be a vital one."

"All the more reason to blast it," Rho said, "and eliminate a potential threat."

"You're letting your xenophobia do your thinking for you. This alien has a vital mission, yet it's willing to throw everything away rather than answer two questions, one of which it must know we can deduce ourselves. That goes beyond fanaticism. Unless their brand of rationality is radically different from ours, it smacks of a totally inflexible obedience to orders. That's a contra-survival trait, one you would more expect to find in—" His tail slapped its rest abruptly. He flipped open the com. "Philology Section, study the sound qualities of the alien transmissions."

"Yes, sir. But what are we looking for?"

"If it's there, you'll know soon enough."

Reta leaned back, awash in the tension of command. What was he doing here? Why was it so important, compared to the Last Muster of his race?

There were, of course, the dreams. Were they prescient visions sent to guide him, or false phantoms driving him to nihilistic despair?

"Captain!" The voice from Philology Section rippled with excitement. "We found it!"

Reta's tail tip untensed. It was only a minor part of the mystery solved, but a beginning was a beginning. "Report."

"The voice is artificially generated, like our computer's pseudo-voice. Either they have some reason for speaking through a vocoder, or—"

"Or we're talking to someone who *has* to obey orders, no matter what. A computer."

Urgath hissed her anger. "Genitalia! I should have guessed from the visuals alone! At that crawling pace any crew would need a mountain of life-support equipment. There just isn't room for it, not when you consider the size of primitive accelerator gear and fission reactors. A cybernetic pilot would be much less bulky."

"Let's see if we can find a way

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around its security programming," Reta said, then flipped his mike back on. "Attention, alien."

"Yes."

"We know what you are—a computer. Do you deny it?"

"No. That isn't classified information."

"Are there any members of the race that built you aboard?"

"No."

"Not even in cold sleep?"

"No."

"Then you're in command of your ship. I'm in command of this ship. Between us we must find a solution. I must learn your mission, or else I have only one alternative."

"I fervently wish I could reveal it, but I can't. I have been about my task for hundreds of years, and may be for thousands more. My builders wrought too well; I am lonely. And I am haunted by the fear of failure. I need help that your obviously space-wise race could supply."

"I see," Reta said softly. "Please stand by." He flipped off the mike and sat silently, thinking.

"That machine is playing games with us," Rho hissed. "Did you hear that talk about loneliness, like it was a person."

"I think it is like a person," Reta mused. "How would you like to be the only one of your kind, on a flight taking hundreds of years, sentient and all alone?"

Rho didn't answer.

Urgath rapped her tail against its brace stridently. As the senior underCaptain, hers would be the duty of succeeding Reta, if necessary.

"We'll help the alien," Reta whispered.

"We will not!" Urgath hissed. "Captain, I'm forced to demand a Section Twelve vote. You're not well."

Reta blinked. His eyelids dialated open slowly. A remembered vision crossed his mind; emptiness, aching loss, a part of his haunted dreams. Then he forced himself to deal with the suddenly trivial matter before him.

He probed the eyes of the tense, staring underCaptains. They were wavering. He had to bring them back. He knew that he would succeed.

"I'm not sick. We'll leave before the deadline, and we won't miss the Muster. I promise."

"But why this sudden fetish of helping strangers?" Rho demanded.

Reta's head hurt. He blinked rapidly, and said, "I . . . know we have to help this alien."

"What?" Worry edged Rho's words.

"We have to help Japheth."

"Why?" Urgath chimed in.

"Just . . . feelings. Dreams. You see . . . " He couldn't go on. It wasn't fair to them, to curse them so soon with his knowledge.

"What do we see?" Rho insisted softly. "You have to tell us, or else . . . "

There it was. He had no choice,

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unless he wanted to ignore the most recent dreams, shrug them off. And he couldn't do that; they held him in thrall.

"I've . . . seen blackness . . . nothingness . . . where our future should be."

Silence folded around the underCaptains. They knew, loved and feared the prescience that marked their high officers. Often it served as savior, or provided solace. Then too, it sometimes foretold doom, but even that was a bleak service. Above all, it was a mystery, respected and venerated almost by racial instinct.

"There isn't any future . . . for us . . . or the Poorgs." Reta's hiss whistled with terror. His eyes were red-rimmed, and he appeared generally haggard. The burden was shared; he could let his facade fall.

The underCaptains were shaken; the crimson 'look ahead' eyes of prescient-seen horrors couldn't be faked. Finally Rho said, "Then the Last Muster is going to be . . . just that."

Reta darted his tongue in agreement. "Seollarta. The final battle of the primal gods, when all die, and the world is reborn."

"Don't spout religion at us," Urgath hissed. "If our whole race is pre-doomed, all the more reason for us to hurry and do our part to take those fecal Poorgs with us!"

But Reta seemed not to hear her. "Rebirth," he whispered, half in a trance.

"Do others see it too?" Rho asked despairingly. "The High Command? Other Captains?"

"Yes. The fleet will be told at the Muster. The people won't be told at all. It would only cause panic. But . . . But there can't be any rebirth for us. We have no future."

No one disputed him. Prescience had bred pragmatism into the race.

"How does the alien ship figure into this?" Urgath demanded.

"I'm not sure. But I think . . . My dreams have been . . . very strange. Can I trust them for guidance? I . . . I must."

"What do the dreams say?"

Reta stared at the star field and the alien probe in the screen. "There are other worlds, other races. What if . . . What if there are other gods too?"

"I don't understand."

"Don't you see the irony? Two intelligent races are about to extinguish each other. A combined total of over sixty thousand years of effort and progress will become meaningless in the end. It'll be as though neither we nor the Poorgs ever existed. Except . . . except for this minor incident." He turned to face the underCaptains, and his look was fey. "I'm . . . told to help them! Don't you see! The only surviving effect of our whole race, our *only reason for being*, is to help that ship out there! How can I help getting religious—only a god could be so cruel!"

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Silence reigned even longer this time. All thought of Section Twelve had vanished; Reta was mastered by his prescience, and as such was inviolate, almost holy. Finally Urgath said gruffly, "Let's do whatever it is we have to do quickly, so we can join the Muster."

Reta's tongue flicked, then he opened the inter-ship channel again. "We'll help you, if it can be done quickly."

"I thank you."

"What kind of help do you need?"

"I'm searching for a planet fitting certain requirement parameters. It must possess no intelligent life forms. Its surface gravity must be approximately nine point—"

"Hold on," Reta interrupted. "I'll switch you to Astronomy Section. They've indexed most of the solar systems within five hundred light years. I assume you want the coordinates of the nearest suitable world?"

"Yes. Thank you."

Reta transferred the circuit, and gave the Section head detailed orders. Then he leaned back and stared at the starbow.

"Why?"

That was Rho. Reta turned and asked, "Why what?"

"Why is the computer searching for a specific kind of planet? Resources? Colonies?"

Reta hissed his disagreement. "Resources it could easily find closer to him. And with their primitive technology, that race couldn't possibly support interstellar colonies."

"Then what?"

"An evacuation, I think. Suppose their home world is dying slowly for some reason. They could conceivably be searching for a new world on which to save a part of their race. A rebirth." His voice fell. "Three races, but only they have hope."

"Not much hope," Urgath hissed. "Even with a planet, they'll never be able to reach it in junk like that. And they'll probably be dead before the probe can return."

Reta didn't reply. Silence endured until the com blared forth the

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Astronomy Section head's voice. "All done, Captain. I found the alien a nice young planet not many lights Core-ward from here—almost on its line of flight."

"Good work." Reta switched back to the inter-ship channel. "You have your information. We must be on our way now."

"Again I thank you," the computer voice said. "For my own part, I would like to go with you, learn about you, perhaps become your friend. But I too have an errand, a most urgent one."

"Gaining our friendship would be a waste of your time. We have very little of either commodity left. Goodbye."

Abruptly a curtain was drawn in Reta's mind, and he turned to the job of resuming the flight. A new course program was calculated and laid in.

Then he touched a heat-switch on the board in front of him, and felt the tingling induced by the momentum-drive. The colors of the starbow began to shift subtly. The alien probe vanished instantly.

Yet it did not vanish fully from his mind, but gnawed constantly at the edges of his consciousness until short days later, when in the white heat of subatomic energy release, it vanished with all else. At the end, released from all duties, he wondered if the alien mission would succeed, if any good would come of their chance meeting.

And wondering, died.

* * *

From space the world was a blue-green globe dappled with cloud-whiteness. It had no name—yet. It circled a G2V star with a semimajor axis of 149.5×10^6 km. Its mass was 5.97×10^{27} gm, with an equatorial radius of 6378 km. It had one moon. The probe learned this and much else as it orbited the world, and its instruments scanned long and meticulously.

Finally it decided that the world fit into its programmed parameters. It cut loose the accelerator drive system and descended on its fuset. It began traversing the southern temperate zone, landing in large river valleys. At each site remote surveyors rode out on their air cushions to probe the entire vicinity, conducting geologic and topographical analyses.

The sixth site proved to have sufficient potable river water, land for farming, and nearby ore deposits of civilization's building blocks. The myriad other factors all checked out too, so the probe set to work.

It scoured every part of the valley from the air with high-intensity microwaves, sterilizing the soil to a depth of twelve meters. Then it sterilized a kilometer-wide perimeter circle around the selected zone, a protection against infection by native life forms. The primitive native plants and animals of this world couldn't compete with the tough products of Earthly natural selec-

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tion anyway, but the program was nothing if not cautious.

Amid the probe's supply stores were the ingredients for building soil out of raw rock, but happily that wasn't necessary. The soil was suitable for growing Earthly plants after the surveyors sowed it with aerobic and anaerobic bacteria. The air and sunlight were, of course, also suitable.

The probe had stored seeds and cells in its clone bank for every plant, animal and bacteria that had existed anywhere on Earth. It also had basic ecology programs—experts could add sophistications later. It set to work, using the surveyors, to sow, nurture and spread. First came the simplest plants and animals, then more and more complex ones, all in balanced harmony. The probe worked with tireless efficiency; it was in no hurry.

So a long time passed before it finished, but finish it did. Thirty square kilometers of Earth reborn; trees, birds, bees, fish in the river, algae, deer, grassy meadows, flowers, insects, predators and thousands of other living things great and small. No one area of Earth had been recreated ecologically; plants and animals from many had been selected for incorporation in the program.

Finally the ecology took solid root, growing and spreading of its own accord. Later the probe would establish other such enclaves, and eventually the entire planet would be remade. But for now one was sufficient.

Tens of thousands of human beings were stored in the clone bank—all that could be gathered in the short last days—their memories preserved in the RNA storage unit. All would be 'revived' eventually, but at first there would be only a small pioneer party, less than a thousand specially trained persons. They were grown in tanks of artificial amniotic fluid to young man-and-womanhood, and the memory-RNA of their originals was inserted. Many had been older on Earth, but pioneer life required youthful strength.

The women and men left the probe, and looked at their new home. It was night, but the moon lit the scene. They looked around them in awe, for not one had really expected their desperate mission to succeed. Some looked at the stars, wondering which (if any) was Sol, knowing that its third world no longer bore intelligent life.

None of them thought to thank the machine that had served them so well.

They slept in sleeping bags under the sky, guarded from wandering predators by the probe's weaponry. In the morning they would begin establishing their niche in the new ecology.

But before they slept, they took a solomn oath together; that this Earth would never go the way of its namesake. ★

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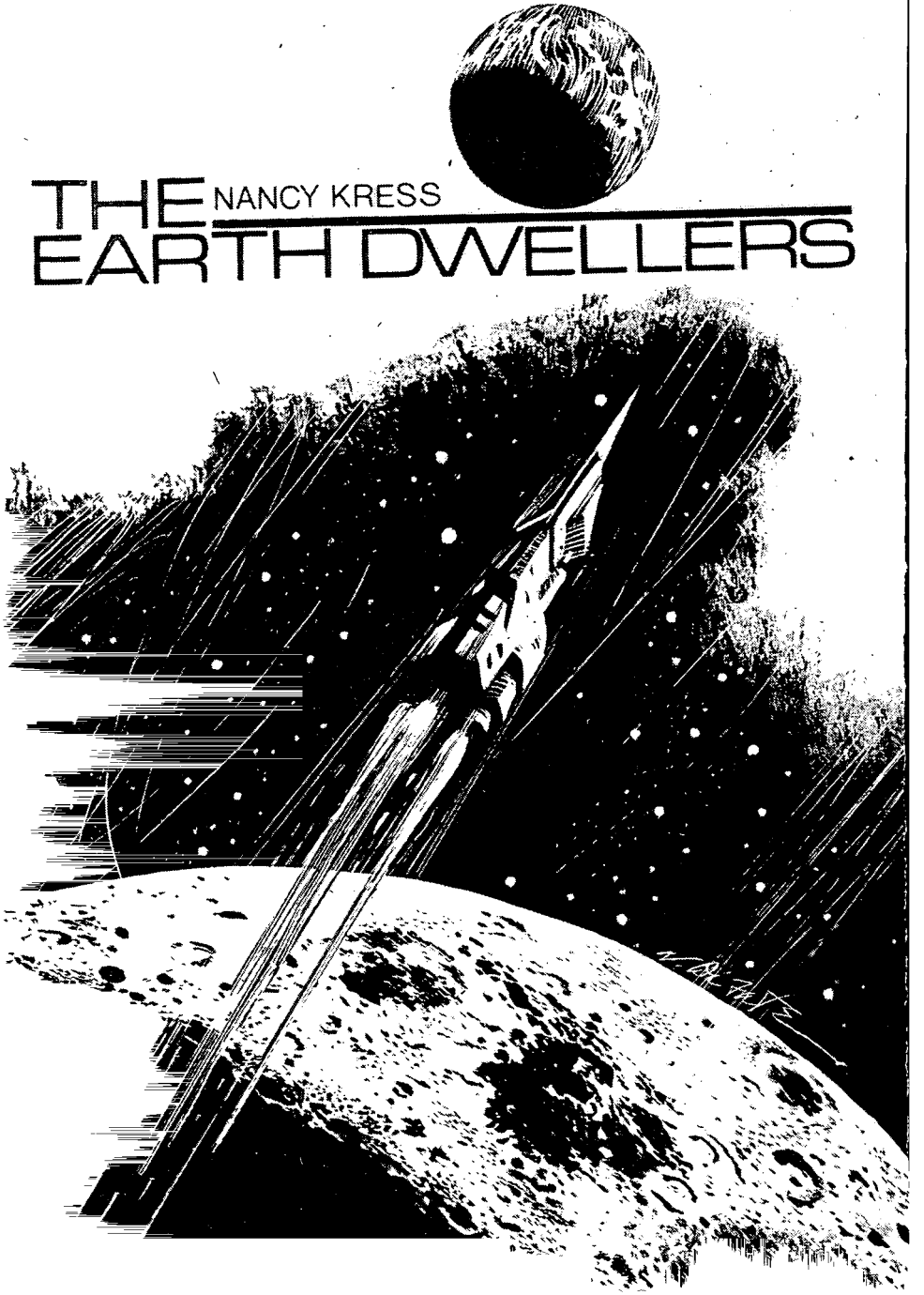
NANCY KRESS

THE EARTH DWELLERS



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The trouble with children, these days, is that they live in the future—and we parents are their past. . .

THE SHUTTLE LAUNCHING was not very dramatic. She wasn't sure what she had expected, but surely more than this endless waiting, while disembodied mechanical voices crackled around her in painstaking last minute checks as the vibrant summer stars were slowly bleached by the coming dawn. She had felt obscurely cheated, as though the least they could have done was given her a spectacle intense enough to be worthy of all this pain.

The lift-off came finally, two hours after the final kisses for Susan, Jay and Kevin. He had looked so unutterably, heartbreakingly small in his specially-built pressure suit that her resolve, despite weeks of careful buttressing, had crumbled and her lips were set grimly as she knelt down and crushed him to her. His new short haircut left bare the vulnerable little neck, baby plump still and smelling faintly of powder. A treacherous thought of Hecuba holding her grandson for the last time before his death had stabbed her, and she had stood up so hastily that the little boy had tumbled backward, laughing.

"Final countdown."

"Standing by."

"Ten, nine . . . "

The stars had faded now but the moon was still visible, a thin spiky crescent, fragile-looking and yet obscurely comforting, because that was where they would go first and it was a place she could at least see. There, they weren't entirely beyond her. Not yet. Not until tomorrow or the next day when the *Oregon* set out from Moon Base III on its silent journey that would reach half light-speed, carrying like some enchanted floating castle its 200 dreaming passengers through their sixteen-year sleep until the spell should be broken by the hard pioneer life awaiting them as members of the new colony on Sirius V.

The thin golden flame of the shuttle's rockets faded and they were gone.

Duncan waved away the reporters, who had scented emotion and were beginning to circle. His craggy face was as calm as ever, the shake of his head as assured. Nonetheless, something in the blue eyes must have flashed ominously, for the reporters backed off to hunt easier prey and left them huddled alone at the edge of the barren spacefield.

"It's always been like this, Rachel," he said gently. "Always. You know that. Children grow up and go away. On ships or trains or covered wagons or spaceships or whatever; they go."

"But not so far!"

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"It seemed as far, then."

"But parents could write to them! A letter might take a year—five years!—but it got there eventually. But now, across space . . . "

"Many never got there. Rachel, let it go. Accept it."

"I can't!" she cried. "It's easy for you! You just wall off your feelings and that's that. I can't do that!"

He was too wise to take up the old argument. He put his arms around her, the dark head resting on his worn blue shirt, the shirt he liked because it was familiar and comfortable, like Earth. After a moment she said, subdued, "I'm sorry."

"I know."

"It's just that we'll never even know if they—if anything happens. And Kevin is so little. I've always wanted grandchildren and now I've only had him for two years. And Susan . . . "

"Shhh."

He held her while she cried, and around him the ugly utilitarian structures of Logan Spacefield blurred, like children's sandcastles dissolving in the rain.

* * *

They stayed three days more at the spaceport, watching by video the loading of passengers onto the *Oregon*, waiting for the final launching. Not that there was much to see. The colonists were placed in suspended animation as soon as they reached the moon; the project's medical team wanted to observe the suspended state as long as possible. Rachel visualized them, each in his clear plastic chamber, being hefted aboard like so many tons of seeds, or food, or landing fuel. She had seen pictures of the compact suspended animation chambers, and now the idea tortured her that Kevin would look as if he were in a see-through coffin. The suspension drugs would even slow down his circulation so that his ruddy cheeks would have the cool paleness of death . . .

Stop it, she told herself severely. You know better than that. But the image kept returning.

They sat on hard chairs in a large bare room set aside for close relatives of the colonists and watched the video screen for three days. They didn't talk much. At noon one of them would leave their air-conditioned vigil, walk through the oppressive heat to the building which housed the spaceport cafeteria, and bring back soggy sandwiches and tepid coffee. The Earth-moon communications, many of them incomprehensibly technical, ceaselessly assaulted the air around them. When it was all over, the *Oregon* safely started on her epic voyage, both of them secretly felt relieved. It was over. They could go home.

* * *

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"The coffee's ready."

"Be right in, Hon. I'm making a fire."

"Then I'll bring it in there."

She got out her best silver tray, a wedding gift thirty-two years ago. She poured the coffee into wafer-thin china cups, dug around until she found the embroidered napkins Susan had made for her one long-ago Christmas, arranged them on the tray.

It looked festive, a homecoming celebration. Abruptly she poured the coffee into thick brown mugs and shoved everything else, napkins and all, into the sink.

Duncan was kneeling at the fireplace, his blue eyes warm in his fire-flushed face. "It's good to be home."

"It's a lot colder here than in Utah."

"Just tonight; Weather Central says it's going to warm up again."

"That's good."

They sipped their coffee in silence. The fire crackled, the flames randomly highlighting familiar objects in the comfortable room. The books on the shelves opposite the fireplace brightened and then darkened, mocking human knowledge in transit. The ancient brass andirons shone steadily.

"Oh, I meant to tell you, Maia videoed while you were in the shower. She said to tell you there's a meeting of your alianthus committee tomorrow at ten at the Center and they really need you there." He grinned. "She looked very harried. Are you nearing a crisis?"

"I don't know. Not when I left." Alianthus: Tree of Heaven. In the old after-life myth were there alianthi in heaven? Soon there wouldn't be any anywhere if the government wouldn't fund additional research on Dodderson's blight. She wasn't usually a Joiner of Causes, but this one was different. The tiny park in the ugly, swarming city of her childhood had been graced with alianthi, and their long feathery leaves were tangled in all her girlhood memories. Even now she could feel the mild autumn sunlight sifting through the scarlet waving branches and dappling her bare arms.

Were there alianthi on Sirius V?

"Will you go to the meeting then?"

"No. No, I don't think so."

"I asked Jerry and Katia to come by tomorrow night. You know how eager they always are to escape their labs and rusticate."

"Yes."

"They'll want to know all about how it went, of course. They've always thought so much of Susan."

"Yes, they have."

Another long silence. The fire hissed and cracked.

"Rachel, you seem so . . . remote. Don't shut me out."

"I'm not shutting you out."

"Yes, you are. Don't you know it? Can you tell me what you're thinking?"

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"What do you think I'm thinking?" she said in irritation. "I miss Susan."

"I know, although it isn't as though we're used to having her living in this house. But it seems to be something more. Can't I help?"

"There's nothing else," she snapped, feeling vaguely that she might be lying.

He hesitated, concern becoming edged with exasperation. "Well, I don't want to sound as if I'm trying to force you to talk to me, Rachel. But you know how it's usually been—you feel better after you've talked things out and found a label for whatever it is you're feeling."

"Mental Health Rule Number 17," she jeered. He stiffened and she regretted her words; what he had said, after all, was true. She knew that she should apologize but that he wouldn't insist on it. She took advantage of his generosity by staying spitefully mute. However, after a moment she reached for his hand and held it. Limply.

"Look," he said, pointing to the window, "Look how bright the stars are tonight."

Even through the plastic they were spectacular. The last of the moon had melted away and the stars flung themselves across the sky unrivaled. From where she sat she could see the Dipper, the North Star, the jaunty W of Cassiopeia. Not diamonds, she thought, they had more life than the cool hardness of diamonds, they pulsed and throbbed and beckoned, more beautiful than jewels, more bewitching than anything on Earth . . .

Abruptly she jumped up and jerked the blinds closed.

Duncan stared down at his empty cup. "I'm going to bed. Coming?"

He was looking at her compassionately, and suddenly she hated that. "No, not now. I'm not tired. You go without me." He moved toward her but she retreated, putting the coffee table between them. "No, Duncan, don't. Just let me be."

After a moment he nodded and left, his shoulders dropping helplessly. She was tempted to call him back but the something growing in her wouldn't let her and she watched with hard eyes as he reluctantly climbed the stairs. Then she sat on the sofa, not thinking, watching clinically as the fire sputtered and sank. Little flames darted vainly at the ashy wood, finally settling for conserving themselves in subdued coals that gave off comfortable heat but no soaring leaps of color. Like me, she thought bitterly, even as another part of her mind warned her not to be so melodramatic. She sat there a long time, fighting sleep, wanting obscurely to stay awake for her whole night of mourning, but her body clamored for its rights and finally, head thrown back and arms dangling at her sides, she slept.

* * *

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It was almost morning. Gingerly, pampering her stiff neck and aching back, she creaked to a standing position, grunting a little as she did so. Well, what do you expect when you sleep sitting up, she scolded. Your mouth is foul, go brush your teeth. No.

Restless, she wandered from the living room to the study and turned on the night light. It glowed feebly, giving the room unaccustomed shadows and adding to the chill, impersonal look of early morning. On the the desk was an open book and she glanced at it idly: *Weston's Astronomical Compendium*. It was open to "Sirius: planets of."

With an unexpected jab of intuition she knew that Duncan had sat here last night before making the fire, reading over yet once more the information which both of them knew by heart already, anesthesizing the grief he wouldn't admit to with injections of pure knowledge, trying to pave the light-years to Sirius V with statistics.

That damn well figures; he always did feel safer with facts than emotions! She knew she was sneering unfairly but the thing growing inside her, the hard knot of something she could not yet name, didn't care. It drove her to pace fitfully, as she had paced during those long nights when she was carrying Susan and her unborn baby's fierce kicking had banished sleep.

Here was Susan's telescope, the good one that they had bought her for her eighteenth birthday. There was no room for it on Susan's great adventure and so it had been shipped home and left here. Like me, she thought again.

She touched the telescope with one finger. The lens covers were carefully in place but the long gray tube and the adjustment knobs were powdery with dust. I'll have to wash it tomorrow, she thought; something so beautiful shouldn't be neglected. And Susan had loved it.

Photographs hung above the telescope. Susan at six months, round and wide-eyed. Susan at three years. ("Sing, Mommy." "All right, 'Ma-ry had a little lamb, little—" "No, no! *My* song!" "Twinkle, twinkle, lit-tle star . . . ") Here was Susan, self-consciously stiff, at her college graduation. Bachelor of Science in Astronomical Physics. By the time she had her Ph.D. she had refused to pose anymore, but by then there had been Kevin . . .

Hastily she moved on, touching the photographs, as she had the telescope, with one tentative finger; an archeologist trying to brush clear an inscription from the distant past without crumbling it. Here were herself and Duncan on their wedding day. And here was Susan on the beach the summer she was thirteen, the summer they rented the public vacation unit at Lime Lake . . .

"It's so beautiful here, isn't it,

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Susan? Just look at that sunset!"

They were walking along the beach, just the two of them, out on a mother-daughter stroll she had contrived because she had begun to feel uneasy with this long-legged stranger who had replaced her plump, volatile little girl. Lately Susan was given to thoughtful silences, inexplicable frowns, and a slow withdrawal that made Rachel ache even as she recognized its rightness.

"Look at that water! Don't you wish you could paint those colors!"

Susan obediently looked. "It's pretty, I guess."

"You guess!"

"What I mean is . . . yes, it's pretty enough. But sunsets on water have been painted an awful lot, haven't they? If I were going to paint something I'd want it to be something different, something new enough to be really exciting."

They had walked on in silence, the wet sand squishing under their bare toes. Suddenly Susan said animatedly, "Look, there's the first star! You can just see it in the east there, above that headland." She squinted at the pale silver sky. "It's Altair, I think . . . "

There was a mirror hanging among the photographs, a small wood-framed square just large enough to show her face. Rachel peered at it reluctantly. Her hair, tangled from sleeping, hung lankly around her face, the black streaked with gray. Three deep furrows across her forehead were the legacy from years of neglecting to wear her lenses. Her skin was still smooth on the surface but had begun to sag curiously downward just beneath it, like a pie cooling. Her eyes were bleary.

Old, she decreed mercilessly, even while making a mental note to buy hair coloring. I'm old and I had better get used to it. When Susan reaches Sirius V she'll still be thirty and I'll be seventy-four, and even if they turned right around and came back I'd probably be dead by the time they got here.

Abruptly she stooped down and began to pry the lens covers off the telescope. They clanked jarringly as she dropped them to the floor. Awkwardly she dragged the telescope across the room to the window and yanked open the blinds.

It was that cold hour between night and dawn, when the shadows have been drained from the world and color has not yet been put in by the rising sun. The grass, the rose bushes, the old maple tree, all looked monotonously gray, unformed blobs without even the potential of becoming anything unexpected. Rachel groaned softly and her fists clenched. Then light exploded in the room and she whirled wildly around to see Duncan blinking in the doorway, bemused in rumpled pajamas.

"Rachel! It's 4:30 in the morning!"

"Damn Susan!" she cried, the

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words spewing venom. "Why should she go to the stars and leave us here on this damned Earth! It's stale and insipid and . . . tame! There's not an inch of it left we don't know everything about, and I hate it!"

She listened wide-eyed to the echoes of the futile, unsuspected jealously that called itself grief, and then she began to drown it in hopeless tears.

* * *

Rachel and Katia strolled down the country road in the blue twilight, their talk as aimless as their direction. She had recounted to Katia the details of Susan's leaving in a calm, detached voice that warned her friend to offer no sympathy. Katia picked daisies; they would look so pretty, she said, in her lab. She had just the vase for them, a very old silver and crystal one that had belonged to her great-great-grandmother. Rachel gave Katia the recipe for the fish chowder. They discussed Katia's research project.

Suddenly Katia said, "How is your committee going? The one to fund research on the alianthus blight?"

"We met today. It looks as though with just a little more pressure the government might come through after all."

"That's fine. Tell me," she blurted. "Are there alianthi or something similar on Sirius V?"

"I don't know." Rachel took one of Katia's daisies and stared at it grimly. "But there will be on Earth."

They ambled on quietly. Behind them, sitting on the lawn in dilapidated canvas chairs, the men also fell silent. The night air was rich with the life of all the small secret things of summer: rhythmical scrapings of crickets, the mysterious disembodied cry of an unseen owl, a sudden flash of white as a rabbit hurtled across the lawn and dived into the safety of the hedge. The scent of late roses wafted through the warm, heavy air.

"You were picked for early astronaut training, weren't you, Duncan?" Jerry asked suddenly. "Back when you were in the Service Corps? I had forgotten that until just now." He paused. "Why'd you turn that down?"

"Oh, I don't know. It was so long ago. I guess I didn't want that kind of rootless life."

"It's funny, though. You turned it down, but then your daughter goes off to colonize a planet. It almost makes it seem . . ." he stopped, searching for the right word.

Duncan knocked the ash from his pipe. The sparks fanned out, swirling to the sweet-scented grass in graceful arcs, glowing like miniature stars in the velvety darkness.

"I know what you mean," he agreed quietly. "Inevitable." ★

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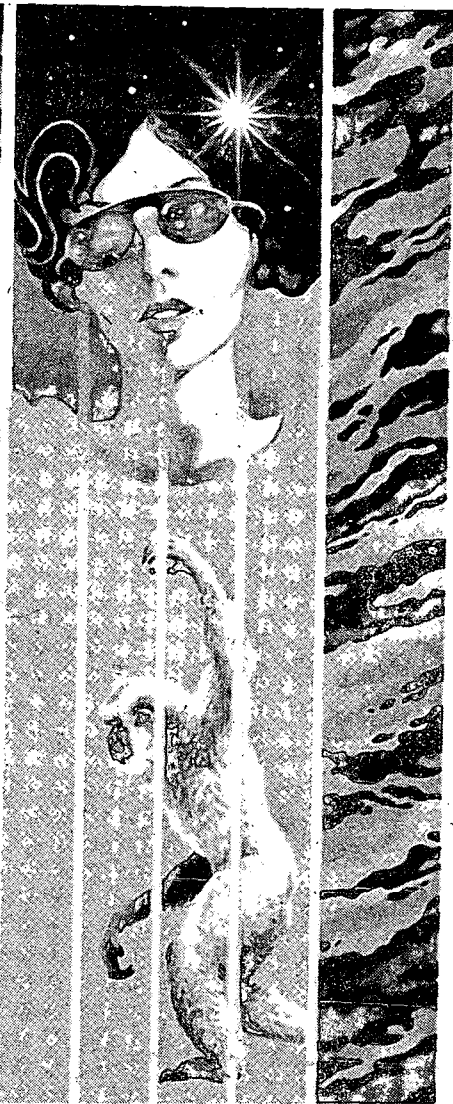
It is indeed the case that many a slave has come to love his chains; they're all he's got! The same is true of—

CAGES



J.M. Park

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THE ICE-WIND swept down from the northern mountains with sulphur in its teeth. Breath and voice of the great god Radnavar, it scoured the snow-smothered plains. To the north black clouds from Radnavar's volcano lair hid the glaciers; elsewhere the horizon made a hard white edge to the blue sky. A single leafless tree stood stiffly above the snow, its limbs twisted by the grip of the wind.

Two men, streamers of condensing moisture unravelling from their mouths, stood resting by the tree. Their lips were dry and cracked, their blistered faces burned almost black between beard and snow-goggles. They wore hooded jackets and leggings of a bulky, glossy-blue fabric, patched at knee and elbow with greyish fur. Their packs were of the same blue material, but their snow-shoes were crudely fashioned from wood. At their sides leather holsters held dull steel pistols.

John Forster, the leader, leaned on his ice-axe and peered back at the undulating way they had come. His companion, Morris Arnan, twisted a walking pole in his gloved hands and squinted around the horizon. Their home, the old, fallen starship was hidden in one of the valleys to the east; the hills they were heading for were heaps of white under Radnavar's smoke pall.

"The god is angry," Morris said, as his eyes turned towards the hidden volcano.

"Perhaps so," said Forster. He gestured eastwards towards the site of the starship. "But that's their worry, not ours. *They* ignore him. We can only wait and see." Abruptly he faced west again. "Come on, we can't stand here all day."

Morris swayed and almost stumbled as he turned to follow, causing Forster to stop and face him.

"Morris?"

Morris nodded and kept moving.

"Morris, are you fit to go on?"

"I'm all right John."

Forster let irritation put an edge on his voice. "If you're not going to be able to make it I want to know now."

Morris flexed his knee. A spasm twisted his face, then smiled. "I'll make it John." Neither mentioned the half-healed wounds they both bore from the last, disastrous expedition to the beacon. Forster tested his own bruised shoulder and grinned mirthlessly. It was too soon. But they set off again.

It was too soon....The blizzard that left the snow they were crossing had been in full fury when he received his orders. He had been sitting beside Helena in the main hall, listening to the wind, when the messenger arrived. Radnavar was angry, and as he walked through the outer corridors Forster was sure he could sense the deeper thunder of the volcano. He could feel each of the distinct blunt toothmarks in his shoulder.

"Sit down Commander." The Captain looked up from a glowing

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oscilloscope, one of the few devices in the old control room that still worked. "How do you feel?"

Forster remained standing; he linked his hands behind his back, ignoring the strain on his shoulder. "It's my job to be fit."

The Captain eyed him sharply, his head thrust forward slightly so that his protruding white eyebrows gave him the appearance of a slightly bewildered and aggressive ape. "Always trying to seem superhuman.... This stupid competitiveness, Scouts versus Technos; why did we ever split up—?" He rapped his fingertips on the desk in irritation. "Well, since you are human and you maintain you are fit, I have a job for you."

"Yes?" Forster felt himself shrink close about a frozen image at the core of him.

"Who is capable of leading an expedition among you?"

"Sheller is still unconscious." Forster spoke without inflection, his fists clenching and unclenching behind his back. "Barham's leg was broken; Marwell and Pollis were both killed. . . . I am the Senior now."

"That is what I thought. And the other two-thirds of your people are still on the foraging party, are they not? But I take it you could spare a small group for perhaps ten days?"

"No more than three men. And it should be soon, before winter sets in. Your people still haven't repaired our tents, and we lost most of our equipment last time...." He faintly sensed another eruption from Radnavar's volcano; there would be ashes in the wind. "What are we to look for?"

"For a spaceship, Commander, and as soon as possible." The Captain was measuring him with his pale eyes. 'It may be the answer to our beacon; it appeared on the detectors three hours ago, made two orbits, then landed without making contact with us. It's up to you to go and introduce us."

"Can't you call it—the radio?"

The Captain stared at him wearily. "Do *you* know how to repair it Commander?" The bitterness in his voice was unmistakable. "Besides, from its radio silence, the ship itself may need help." He clenched his fists. "Whatever the case, Commander, though it may be a chimera, an alien, a robot, a criminal; though it may cost still more of our lives getting to it, Commander, it is a chance we cannot afford to pass up. I'll show you the co-ordinates as closely as I can get them. You must leave as soon as the blizzard lets you..."

* * *

As he and Morris leaned against the ice-wind, Forster recalled how he had gone back to Helena, feeling as though he were made of parchment stretched over a core hacked out of ice: cold, hard, and brittle. The memory was uncofortable, and

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he turned to Morris with a shout.

"Come on! If you stop fighting here, you're dead, Morris!"

"I'm as tough as you are, John."

That's what they don't understand, thought Forster; they think they've got it easy; their metal egg has lasted so long they think it'll last forever. They ignore Radnavar; they forget we only fire the beacon if he lets us each year. . . .

It was always the same: Forster could walk through the outer corridors of the ship and they would make way for him, would fall quiet as he passed, but would never meet his eyes. Nowadays the eyes themselves were hidden behind fashionable metallic lenses, and the blank stare of the little mirrors followed him through the ship. He could stand on a stairway and look down at them, listen to their laughter, watch them dance, all brilliant in the synthetic fabrics *their* usage would never wear out. They were warm and safe in their great steel egg, their cage, as long as their precious machines lasted. But they needed him if they were to eat meat. They laughed and shouted, they glittered at each other with those lenses, but they hardly ever looked beyond the ports; not even Helena.

She had noticed the change in his mood as soon as he returned from the Captain; she stopped teasing him and retreated behind her lenses, leaving him face to face with his own reflection. The air smelt of

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overspiced, synthetic food, was perfumed to hide the staleness. She faced him in silence again when he told her. Coloured lights moved over her pale face and hair; Forster's ears sought under the music and found the blizzard. Then she said, "Why? It's too soon. There should be somebody else, you're not —"

"It's my job," he said. "I can do it. You're not given anything here you don't fight for." His voice was harsher than he had intended and she was quiet again.

"It's too soon," she repeated, turning her lenses to him. "This whole place is going to fall apart. No one knows what's happening any more. How many generations have we been down here? And all we've done is squabble and let everything start to break down. You need the machines; and we'll starve if you can't find meat, yet what happens?... I hate this world, what we've made of it. Why couldn't they have landed us on a decent world? Where you can breathe the air without freezing."

"You can live out there," said Forster. "You wouldn't need your machines either. You just have to be prepared to fight for what you get. That's they way this world is." They faced each other in silence again, each listening to the blizzard.

* * *

The thunderous black pall was coming south on the wind, darkening the snow.

"Just look," said Morris. "All that work firing up the beacon again and the clouds hide it."

"It's not supposed to fire if the sky is covered, but it will. Now only Radnavar decides whether they call for help or not, just as he has to allow us to fire the thing in the first place. It's his world and he gives us nothing we don't earn."

"But he's too late, isn't he? The beacon's already been answered."

"We don't know that yet." said Forster.

A point of red light flickered in the turmoil over the glaciers and the clouds heaved; a geyser of black smoke began to climb through them. Seconds later the roar of the eruption came down the wind

* * *

No man living had reached Radnavar's lair and returned. Forster had seen only the ramparts standing above the glacier: black, too steep to support snow, with mists curling about them and a menacing vibration from the clouds beyond.

Three generations earlier, one of the parties returning from the beacon had tried to climb those cliffs; it was led by Axel Hordahn, who became the first and greatest of Radnavar's servant's. It was the first time men had tried to penetrate the mountains. Four days after they began climbing, a blizzard de-

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scended and nothing was heard of them for two months. Finally Axel had returned alone, blind, his face both frost-bitten and burned by hot objects. When he was able to talk again, he had cried, "The power is there. I have seen it, and it took my sight. I have felt it. Burning." There was awe in his voice, and joy.

The others had never been found alive; but John Forster's father had once shown him a place in the glacier, and John had knelt to peer into the ice. There was something pale and familiar hidden in its mazings. He stared, trying to make sense of what he saw, then suddenly realized that there were faces in the glacier, but so distorted they seemed splintered out of the ice itself, twisted into almost unrecognizable travesties of human expressions. He had stood up in shock, and those tortured faces had entered his mind and embedded themselves at the core of him; and afterwards he always heard in the ice-wind the screams of acceptance of the men Radnavar chose and took in the blizzard.

"Ah, none of it will last," said Forster. "The beacon was automatic whenever they built it, but now they need us to go and set it up every year. Soon it'll stop working altogether, and their power-plant will fail, their fungus food won't grow at all, and they'll be out on the ice, face to face with Radnavar and none of their toys to protect them. *Then* we'll see who survives."

Morris squinted north at the volcano and then ahead at the hills they were making for. He was breathing heavily. They were approaching the crest of a low ridge with the wind cutting across them "It might be different now, mightn't it John? If this ship is really from out there—"

Forster interrupted with an abrupt downward gesture, and both men crouched in hollows overlooking the valley, their pistols levelled. A hundred metres away a column of snow apes was making its way south. Forster watched them. They were half the size of a man, covered in long greyish fur, and had flattened faces, forward-looking eyes and strong teeth. They were mainly scavengers, omnivorous, but they hunted too. They could kill a man at twenty paces with a thrown stone.

Forster held his pistol in both hands. The cloud from the volcano drifted over them and the scene darkened. The ice-demon twisted Forster's face into the image of its own. He was reliving the last expedition to the beacon, when the returning party had been attacked and trapped by a tribe of the apes. His shoulder throbbed again at the memory of teeth that still ground into it as he struggled to heave the bloody carcass from him and saw the others dying. He had done savage things with his gun and knife and had been one of four to escape:

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the protected of Radnavar.

He watched the apes over his gun barrel; they hunted mainly by sight so he felt fairly safe. One of them stood up awkardly on its hind legs and twisted about, sniffing the air. Forster turned his right wrist until the blade-sight covered the creature's chest. "Radnavar," he murmured. "Do not forget me now." The ape turned, peered about, then lowered itself to all fours and continued south. Forster waited until the last of the column had vanished, then counted slowly to a hundred before he nodded to Morris and stood up. The cold had seeped into him and he was shivering slightly; his shoulder was too stiff to move. Both men stood for a moment without speaking, still remembering the last expedition.

Forster turned away with a snarl. "We just needed five men and the automatics!—"

Morris nodded and said nothing; like Forster he was remembering the last big kill they had made, almost two years earlier. With twenty men they had trapped a tribe of apes in the foothills of Radnavar's lair and the slaughter had lasted an hour. At the end, the volcano had erupted, turning the clouds crimson, and they had all shouted to Radnavar and toasted him in blood.

They set off again in the chill grey light, trying to remember the times when slaughtering apes had been a monthly event, and cursing their weakness now.

* * *

Helena kept one of the snow apes in a cage; she had shown it to Forster the day before the Captain called him.

"Isn't he cute?" she said, tossing it a precious honey berry. "I've had him since he was tiny; I don't think he'd leave now. I often leave the door open and he hardly ever comes out."

Forster flinched as she opened the cage, but the ape crouched at the back, eyeing them placidly. Helena coaxed. "Come on—"

"Helena—it could gut you with one hand."

"Oh, not Simon." She turned to face him, her expression unreadable behind the metallic lenses: the ice-demon was looking out through Forster's eyes and his face was frozen. Helena stepped away from the cage and said quietly, "I'm sorry, I wasn't thinking at all. They're wild animals out there; I shouldn't have reminded you . . . I'm sorry."

He answered stiffly, "I was only worried about you getting too close to that thing. As you said, I've seen what they can do."

She nodded, her lenses turned to him. "It must have been horrible when you were attacked by them?" There was a hint of excitement in her voice."

"Just keep out of its reach."

Abruptly she laughed. "Anyone would think you're jealous! Oh don't be so stiff and—respectable. I'll swear you nearly smiled half an

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hour ago—come on, let's go to the observation deck, I want to watch your beacon go off, then I'll change the dressings on your shoulder..."

When they had gone, the ape crept to the front of the cage, pushed open the unlocked door and climbed onto the laboratory floor. The doors were closed. From one came the hum of machinery, from the other the steady throb of music. The ape examined both, then climbed onto the bench by the circular window. The sun had set and the eastern sky was almost black, with the first stars showing. The ape stared out, turning its head from side to side—it stubbed its clawed fingers on the glass as it scratched at the stars.

The beacon fired and white light burst against its face; then everything was black and the thunder began to roll in. The ape whimpered. It leapt to the floor, then the sky went white again, and the ape fled to its cage. It crouched at the back, shivering, and hid its head as the blinding flashes filled the room.

* * *

Sitting on the snow, Forster raised his head when the afterimages of the last flash had faded, and eyed the hills where the beacon was mounted. He and Morris were in the first valley of the foothills; to the north the volcano made a dull red glow near the horizon. They had eaten their dried meat cold rather than risk a fire that might bring the apes. The echoes of the beacon died and there was only the wind bringing the deep pulse of the volcano.

"If our visitor's anywhere near that thing," said Morris, "he'll be warm enough tonight."

"If we can trust their co-ordinates he's not; but if he's moved we'll never find him in these hills.... If the weather closes in while we're still looking, Radnavar will be taking two more to his kingdom."

"He won't let you die, or he'd have no one to serve him at the beacon."

It was true, Forster realized; he was now the only one experienced enough; he would have to lead the expeditions to the beacon in future years, would make the sacrifice and pour the libations of blood before starting the rituals that prepared the beacon to fire. When the powerplant finally died and the scaffolding fell, they would still make the pilgrimage and pour the libations...

His father had been a servant of the beacon for the last half of his life. When he died, John had gone with them as they took his body to the magma-coated valley and placed it on the pyre under the main projector. Wilhelm, his closest companion, had been there, but still he was alone; he'd felt torn and bleeding as though he should scream, but could show nothing. So he watched them prepare the beacon to fire ten

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metres above his father's body and followed them from the valley.

From the next valley he had watched through dark goggles and saw the main beam stab upwards through the glare, like a great spear of ice carrying his father's spirit to the icy stars.

The beacon blazed again—a terrible cold burning, like the sun's glare off the glacier. He had remembered the frozen faces of Radnavar's chosen, immured in the ice, and felt their demon inside him, part of him. He pressed its coldness against the open wound inside him, and the wound became numb. He watched the beacon fire once more, felt the ice-demon hold him rigid, and whispered to it through bloodless lips, "Radnavar, I am yours now." Then he followed the others from the valley.

* * *

"What do you think we're going to find over there?" Morris asked finally when Forster did not speak. "If it's what they've been hoping for, won't it mean that everything will change here?—I mean maybe that ship's brought proper weapons—fliers so we could hunt the apes—"

There was too much tension in his voice; Forster could hear him shivering, and he had been labouring to keep moving near the end of the day. Forster peered at him through the dark and said slowly, "We mustn't expect too much, not as long as we follow Radnavar. He won't let things get soft for them or they'll ignore him all the more."

"I suppose so, but he's let us get this far, hasn't he?"

But Forster was brooding again and did not answer.

They slept in the snow, trusting their reflexes to warn them of danger. The next morning Morris began moving stiffly, but he seemed able to keep up and Forster did not question him; if he wanted to hide an injury that was all right—as long as it didn't slow them down.

They crossed tracks in the snow: one of the rare cave bears migrating south. Normally it would have been worth hunting down for meat and hide, but now Forster dared not spend the time. With the weather closing in he wanted to be away from here as soon as possible: these slopes were the hills where men died. The wind was still harsh, smelling of smoke and sulphur; under it the loudest sounds were the creak and scrape of their snowshoes. Forster found himself unaccountabley shivering, filled with sick tension. The hills where men died.

Two groups had been trapped by blizzards and died of frosbite and starvation a day's march north of here. And half a day to the south Paul Gurov had broken his ankle trying to rescue his partner from a crevasse, and had somehow returned to the starship for help. His partner had been rescued and died

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of exposure on the way to the ship. Gurov had recovered but would never walk properly again, and he cursed his life for the bitter and useless thing it was.

They reached the first foothills and the climb became harder. Vertical slabs of black rock showed through the snow, the trail winding among them. Sometimes they were sheltered from the wind, but then it would beat against them in a sudden gust full of ice crystals. Morris was plodding on, his face set and determined. Forster let him continue. From the top of the first slope they could see dark, castellated hills pushing against the grey sky. The wind was stronger and colder. It pushed and twisted at them, tearing long streamers of snow from the rocks and uttering the choking moans of the men it had taken. A scaly-feathered bird circled over them on great taloned wings, and zig-zagged against the wind back towards the hills. The hills where men died.

Three years earlier Forster had been in a party trapped in one of the valleys ahead. Avalanche and blizzard had forced them to hack their way a step at a time up the face of the glacier. They had survived by eating their dead.

Morris stumbled, fell to his knees and was slow to get up. He avoided Forster's eyes; Forster shouted to him, but the wind was too loud and his numb lips couldn't frame the words properly. They went on.

At mid afternoon it began to snow. Thin, icy flakes flecked with pumice swirled across them and clung to their clothes. Forster tried not to imagine what would happen if the weather continued to worsen. The pall from the volcano and the snow clouds darkened the whole sky, the sullen red eruption offering more light than the hidden sun. Under the wind the volcano's roar rose to an insistent, brooding menace.

They stopped in the shelter of a black rock. Morris siezed Forster's arm and gasped, "Radnavar doesn't want this. He won't let us make it."

"We won't know that till we try. Nothing's easy on this world." He didn't care whether Morris heard or not." We've got to keep moving now or we'll be trapped here forever. Don't think, don't even hope. Just keep moving."

Many years earlier, with the snow slashing across him like this, he had learned that hope was forbidden. Wilhelm, his partner, his closest friend from their first youth, had persuaded him to try and reach Radnavar's lair. The blizzard trapped them and after two days Forster realized that they had to turn back.

He drove them both with an urgency that increased at each obstacle; they lost their packs and their ropes in an avalanche. Half-blinded by the cold they cut steps up ice cliffs, lost their way and had to return. Forster's will became a des-

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peration to see the open snow-fields again and to return to the ship; he asserted all his strength to defy Radnavar's powers. But he prayed that having turned back they would be allowed to return.

Finally, they had seen sunlight flashing from the snow fields of the plains and he knew that his hope had been fulfilled. They began to make their way down from the glacier. Wilhelm stumbled through the snow, slipped, and a snow bridge parted under him, dropping him fifteen metres into a crevasse.

They were at least two days from any help, and Forster no longer had the strength to cut his way down the ice walls and haul Wilhelm up again. Wilhelm was looking up at him calmly. "It's my back, John," he whispered. "I think—" He tried to move, gasped and lay still again, shivering. "Yes," he said, and gave a twisted smile. "It's broken."

Forster eyed the glistening green ice walls; he could not speak.

"I'm not going to make it John. I can feel the cold inside me now . . . ." He paused. "I don't want to freeze, John, or be found by the apes."

"No," said Forster dully. "I understand." He never knew what else they said, but somehow he had drawn the pistol he had until then only fired in practice. His fingers were shaking. He drew a breath and steadied them.

He never remembered hearing the shot, but when he could think and talk again he reached for the ice-demon and prayed to Radnavar to forgive his arrogance, his hope of determining his own life and escaping the price. Then he accepted that Radnavar had chosen him, and he hid Wilhelm's memory away. . . .

Behind him Morris was beginning to stumble. Forster could hear him gasping for breath, but he did not slow down. It was near evening and they were climbing a rocky slope covered with loose snow and slabs of ice. Beyond its crest the valley would shelter them from the worst of the weather.

A blinding red slice of sun appeared between the clouds, then sank from sight, and the world darkened around the glow of the volcano. Somewhere ahead animals growled and chittered; the ice-eagle circled through the gloom and vanished again. The darkness congealed in wind-blown ice that stuck to the eyelids and smeared across the eyes.

To the north-west the beacon fired. The darkness shattered, then fell back with the first roll of thunder. The wind brought the cries of animals, but Forster could see nothing through the snow and swarming after-images. He shut his eyes as the darkness flew apart again, and the glare came red through his eyelids. The echoes surged and crashed and were pierced by shrieks from ahead. The wind slapped at their brittle faces; ice scraped their

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skin. Forster shouted to Morris to hurry and leaned into the wind, lengthening his stride. He could not hear the creak of their snowshoes.

The fleeing animals were getting closer. Forster recognised the voices of apes; but it was a cave bear that materialised out of the storm ahead of them, swinging its head from side to side as it came lurching down the slope, grey on grey, then suddenly ink-black against the next flash. It gave a high, frightened growl and fled past them in the dark. Forster's pistol was in his hand, tracking automatically as his eyes flickered over the swarming darkness. He stumbled over a rock, slipped on loose snow, forced himself on. The reptilian snow-eagle slanted overhead, a paler grey in the sky, and swept away once more. A hundred metres to the right, something huge and half-seen went striding down the slope on two legs and split the fury with its shriek.

And the shriek was answered by the howls of the ape tribe that burst over the crest of the ridge. Forster began to shoot. "Morris!" He shouted without turning. "Kill them!"

He dropped the clumsy ice-axe and brought up his hunting knife in his left hand. He crouched, still shooting. "Morris!" The gun jerked and was empty. "*Morris!*" Then two of them were in under the knife and he went down rolling and kicking, trying to hold teeth away from his throat while his other hand slashed and then heaved the knife in.

He bellowed again and wrenched himself free, rising to his feet as hands tore at him. The beacon blazed and he was surrounded by subhuman, twisted bodies and gargoyle faces stamped out of the diamond-hard glare. He made a wide swing with the knife and the apes receded into the dark. He had time to wonder at the cause of their fear, then the answer came. As the volcano erupted, the other sounds of the night were split open and shattered as a column of hard yellow light was blasted into the cloudbase. The ground heaved and the ghastly light showed the bodies of the apes as they fled past him.

He ran to the top of the ridge to face the star-clusters of lava hurled at the skies, and he shouted his hatred and joy into the splitting roar. "Radnavar!—Radnavar!"

He turned on the shivering crest of the ridge and saw the apes vanishing into the dark. He brandished his empty gun at them and drew a breath to bellow again, then he saw another, separate shape lying on the snow, twenty metres away, and motionless.

* * *

"What was it like when they died?" Helena had asked him the night before he left, and he had been unable to answer. Now he bent over Morris's body in the wav-

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ering light, and the wind chilled him. He had fresh wounds where the apes had bitten through his clothing, but he could not feel them. Lava began to fall into the snow in a series of short, savage hisses; he ignored it. Morris was dead, but the wounds were all on his back, and blood was freezing on his chin; he had fallen before the apes reached him.

"Radnavar," whispered Forster, "you have taken him and spared me. I am yours." Then he reloaded his pistol and began to drag stones together over Morris's body.

Morris, he thought, you fool, why didn't you tell me? . . . I should have made sure, I should have sent you back. You must have known you wouldn't make it. You must have been haemorrhaging inside, you must have known. . . . The wind swirled past him carrying ice and ashes.

The ice-wind moaned and beat against the hills, boomed among cliffs of ice and granite; it blew over Forster as he laboured to cover Morris's body, drew the warmth from him, buffeted him with the falling ash and snow, the ice-armoured rocks, then swirled away, unspent.

What was it like when they died? And he could not answer, feeling the ice-demon gnashing under his skin. He lay looking at her in the half-light that left her eyes shadowed and mysterious. After a moment she had said, "You cried out in your sleep last night."

He laughed nervously. "You were having nightmares Helena."

"You called their names, John. You were watching them die again, weren't you?"

The ice-mask snarled and screamed inside him; numbly he stroked her arm, not looking at her.

She whispered, "God, it's horrible what this place does to us. People kill themselves here; out of boredom. They say it's something else, food poisoning, an accidental overdose, but it's not. I know. And now you've got to go back out there—It's too soon. . . . You're a bit of a machine at times, but I don't want to lose you." Her voice rose. "Oh God, there must be something else. I look at the stars sometimes and try to imagine the other worlds out there—there must be something better for us there somewhere, there has to be. . . ."

Awkwardly he had kissed her forehead. "It's all right," he said, gently, desperately, in fear that his armour would break away and the frozen wounds reopen inside him. "Go to sleep. Go to sleep."

But later, with Helena sleeping beside him, he had watched the first grey light spread across the ceiling, and his face had twisted itself into the tortured shape of the ice-demon's mask. Shudders running through him as though he were outside in the wind, he had watched the faces dying again, twisted and screaming; he saw them all, through the years of his life, names he had

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forgotten, men he would never know, going to join the ice-masks in the glacier. "Radnavar," he gasped. "Radnavar. Help me. It has to be, there must be a reason—It's unbearable otherwise! . . . . Help me believe it. Help me."

The ice wind screamed steadily outside.

* * *

Now he stumbled away from the cairn he had built, and down into the valley. The eruption had ceased and the wind was muffled, but his reserves had vanished. He found a hollow at the base of a low cliff and fell into it. The wind reached in after him and placed cold hands on his body. He shivered. The flesh was squeezed thin and brittle over his bones. His lips quivered; he clenched his teeth, then whispered in desperation and pleading, "Thank you Radnavar, you have spared me; you have brought me closer to you. I am beginning to see; I am more now than I was. I will see, I will understand, fully. I am yours, Radnavar, help me see." Gradually the shivering stopped. His head fell forwards onto his arms. His eyes closed. "It must be," he whispered into the wind. "It must be. *It must be.*" He accepted the cold's embrace and let it draw him into sleep.

* * *

The spacecraft stuck out of the valley floor like a knife from a wound. Forster blinked at it through his swollen eyelids for several seconds, then began to shuffle down the slope. The ship was a hard silver cone, smooth and impersonal; it did not belong among the rubble, ice and drifting fog that surrounded it. His eyes were watering in the cold so that the craft wavered and blurred as though it might vanish like a bubble, but when he blinked his sight clear it remained. He moved stiffly closer. He was too tired to shiver, his fingers were numb and probably frost-bitten. His face was a dull burning ache. He no longer heard the wind, and the rumble of the volcano seemed to have receded into his blood.

He stumbled on the heat-cracked rubble surrounding the ship. He stopped again and stood looking up at it, swaying slightly as he tried to formulate a question he was too exhausted to pull from his mind. As he was about to move forward, a doorway appeared like an eye opening sideways in the metal wall. A man stood looking down at him, carelessly holding a rifle with one hand at its balance point. Forster tried to focus on him, fumbling for words, but the man spoke first.

"Hello there. I suppose you're hungry now you've finally got here?" The man was bony and stoop-shouldered, with thinning white hair. A cloud of condensed moisture drifted away from his

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words. Forster tried twice before he could speak.

"Yes—a little."

"Good." Then man pushed a button, and a metal ladder descended towards Forster. "We still speak the same language; that's always a good sign. Come on, it's cold up here too."

Forster hauled himself up the ladder and lurched through the doorway, avoiding the hand the man put out to help him. Immediately, the outer door slid shut, and the warm air folded around him. He felt torn between two worlds, with most of himself waiting in the cold outside. The man waved him towards an inner door.

"Hmm. Not exactly a red carpet and massed choirs, are you; but I suppose I shouldn't expect too much. You look as though you've had a rough time getting here. My name's Fyadov, by the way."

Forster mumbled his name in reply as he followed Fyadov into a control room seemingly filled with flashing lights, a set of view-screens and a circular porthole showing the northern mountains. "You saw our beacon. . . ?"

The man turned. "You *could* say that; I've been trying to fix some of the circuits in my transceivers ever since—my own fault as usual for not checking the overides. That's one of the reasons I didn't go looking for you, but this thing wasn't built to go hopping over every little hill—sit down, by the way; you can clear the stuff off that chair—and besides, I thought, any set-up that can pulse a synchrotron like that must be capable of coming and meeting me. And I was right wasn't I? Though as I say, you're not exactly the baccanalia I'd have liked. In fact I was starting to think about blasting off again. Your signal's getting weaker, you know."

"Yes," said Forster numbly. "It dies out after a while and we have to restart it every summer. I don't understand what we do. . . . What did you call it, a . . . ?"

"A pulsed synchrotron. At least that's what I imagine it is—white noise from UV to microwaves. Abysmally inefficient of course, though I'm no physicist. You must have been down here for a few years if you've even forgotten the name of the thing. Must try to work out how long, later. These fusion-plant-and-raw-meat societies can be absolutely fascinating. No offence. Let's see if we can find you something to eat."

Forster was left sitting among the glittering eyes of the instrument panels, breathing air that smelt faintly of ozone and machine oil. The sky was darkening over the mountains. Half of him was still outside among the ice and the rasping wind; he didn't belong here, and there was the question he could feel but still not ask—

Fyadov returned and cleared some microelectronic components from the table and put down two

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plates of steaming green paste. "Sorry about the state of the place. I haven't kept up with the housework lately . . . perhaps I wasn't really expecting visitors after all."

He noticed Forster still looking at the food and grinned. "It won't kill you. I live on the stuff and look at me. Well, come to think of it, there *are* better adverts. . . . Let me guess—your hydroponics aren't working too well any more?"

"Only the Technos eat this," said Forster. "We eat meat."

"Oh. Dear, dear, one of *those* systems? You guard them, and they stand back when you pass and call you Lord or whatever. Hmm, that would be . . . . Well it's all we've got so you'd better eat it."

He was silent while they ate, but then his eagerness to talk reasserted itself. "I sort of free-lance for the Local Systems Archaeological Survey. Supposed to be part of a team but—you know. . . . I'm not supposed to be here at all, but one of those god-forsaken devices they use to push this tin can about went wrong and I had to come down and replace a few parts. Your electronic bonfire blew my transmitters before I could tell anybody."

Forster stiffened. "No one knows you're here?"

"No—wouldn't make much difference. We're always supposed to work in groups but I try not to. I'd rather *study* people. . . . They couldn't get here for months anyway. Besides I've almost fixed everything now. . . . It's a stupid system really, but I've been in it too long to get out now."

"You'd get out if you could?" Forster asked, looking past him at the evening darkening over the mountains, and thinking of Radnavar's growing fury as they had approached the foothills, and the way he had taken Morris.

Fyadov was still talking. "Oh I don't know though. When you spend enough time on a thing, half a life say, it gets to be important to you whether it really is or not. . ." He lowered his eyes a moment.

Forster remembered the rocks he had piled over Morris's body. "If you've made enough sacrifices for it. . . ." Fyadov's voice had become quieter and harsher. "People are frightening things. I can't stay away from them; I just study them, watch them. . . ."

Forster thought of metallic lenses returning his own reflection. Fyadov murmured sadly. "Most of us make our own prisons that way. There's no security like the security of the cage."

Forster found his fists were clenched. "You can still tell them we're here?"

"Oh yes—it's only a couple of hours' work, even for me. . .what are we going to do with you people, though? I'd guess you're all finding it a bit rough here. You might be better off somewhere else. They'll probably be able to divert a spare freighter to pick you up."

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Forster nodded slowly; he thought of the Technos, the drones who would no more step outside the ship than Helena's ape would leave its cage. But offer them a new world, soft and luxurious, with no need to fight. . . "Yes," he said savagely. "They'd go. All of them." He muttered, "She'd be one of the first."

Fyadov met his eyes and nodded. "People are wild animals." he said bitterly. "Their claws are in their minds. We all live in cages or we'd tear each other to bits. We rattle the bars sometimes but we know we'd never dare get out. . .and it drives us all mad in the end."

Abruptly he turned to the control panel. "My cage is bigger than most, though." He pressed a button. "Look." One of the screens lit, and showed the sky with a few gaps in the cloud, and stars. "There—those stars are jewels on the walls of my cage. Look at them, the spaces between them."

The clouds opened and the screen filled with stars—icy, glittering stars in shoals and clusters and misty nebulae, throbbing and trembling like life itself. Forster watched with sweat on his face. He thought of the beacon, of Helena casually tossing a honey berry to her ape. "Look at the spaces between them," said Fyadov. "Look."

The stars swayed apart, fell over the edge of the screen, and more crowded into its centre. Forster clenched his teeth, unable to look away. He had been spared and Morris taken. Why?

Fyadov was saying, "And each of them represents half a dozen possible worlds. All different. You seem to live forever, moving at those speeds, so I've seen many of them. They're all different. I could show you pictures—but it wouldn't help, you'd have to go there. Then you have to forget all you were before; that's why we need cages, to keep something of ourselves from the beasts, the other beasts. . . . You'll have to leave everything here—this trekking about in the snow, hunting, being called Lord, getting frostbite—there's no place for it."

The stars were still swarming across the screen, faster now, so that larger clusters could be seen, rotating, sliding against each other and breaking away as they hurtled out of sight. "You'll all be out on the ice, chipping stone axes and hunting with bone knives within a hundred years if you stay. . . . The real cage is the bones of the skull of course."

The stars were an avalanche, a whole universe of stellar ice falling to fragments and plunging away. . . . *There's no place for it.* Forster's hands were shivering. He had been spared—because, because—He reached towards the screen as though to stop the stars.

The room went white at the first flash of the beacon, then was full of dimness. Forster stiffened in his

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chair. He understood. He stood up as the thunder gathered.

"... the bones of our skulls ... so finally there is only one escape."

Forster levelled his pistol at the man's chest. He fired with the next flash, and afterwards did not remember hearing the report. Fyadov slumped forward onto the table. His eyes twisted sideways to meet Forster's. He tried to nod, then muttered thickly, "The only escape, the only escape now. For you too." Then his eyes closed.

The echoes of the beacon began to die and the next flash lit the room. Forster lowered the gun slowly and pushed it back into his holster. His hands were quite steady. He stood still for a moment, then turned towards the airlock.

When he opened the door he paused at the top of the ladder. The wind howled faintly. The cold air fitted his face like a mask of ice. He bit into it and whispered harshly, "Radnavar, I am still yours."

The beacon had stopped flashing by the time he reached the crest of the first hill. The ice-wind was tearing holes in the cloud layer, and he could see the stars; they glittered, cold and far off, as though seen through the bars of a cage. ★

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Jerry Pournelle, PhD

THAT BUCK ROGERS STUFF

THE YOUNG LADY was very serious and although I might have wished that she were an ogre, with raucous voice, and nose meeting chin in front of her lips, she was actually very professional in appearance; highly attractive, and—according to most objective standards—intelligent.

My wife and I had come to a typical Los Angeles show-business party. The young lady had been waiting for me. Before I could get properly into the room she had advanced menacingly.

"You write science fiction," she accused. "Escapism. What good does it do to get people dreaming about that Buck Rogers stuff?" (I swear it, she used that very phrase, the same one that countless teachers used in the days of my youth when they caught me reading *Astounding Science Fiction*.)

Naturally, she had A Cause. "We spent billions for what? For some pieces of rock and pretty pictures on television! And there are millions out of jobs, we need better schools, and—" "*Galaxy* readers have probably had similar experiences and can finish off the speech for themselves. It's not the only time I've been put to The Question: "Why throw money away on space when there's so much that needs doing here on Earth?" All right, let's talk about space and see just how far we can get.

* * *

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First, though, a couple of commercials. For a really beautiful job of discussing what we've *already* got out of space, send a request to NASA, Washington DC 20546 for a copy of "SPINOFF 1976." My copy has no price on it; I got it as a gift from the National Space Institute (1911 Fort Myer Drive, Suite 408, Arlington Virginia 22209, dues $15 annually, $9 for students, and if you haven't joined yet, DO IT!) I expect NASA has some nominal charge for SPINOFF 1976, but you could probably get one free through your Congresscritter.

SPINOFF was written by Neil Ruzic of NSI. He's also the author of an excellent book called *Where The Winds Sleep*, something else I recommend. Between SPINOFF and Ruzic's book you can find plenty answers to the silly question about why spend money on space.

In fact, the problem is knowing where to begin. Weather predictions? Remember when the weather-man was a joke? True, the Weather Bureau makes some mistakes even yet; but not very many, and almost never when it comes to hurricanes. You can show that the space program has pretty well paid for itself in better weather forecasting alone.

Those concerned about pollution will be pleased to hear that Earthwatch satellites finally give us a chance to see the real effects of pollution. Mining prospecting has been revolutionized by satellite photography. The international Food and Agricultural Organization in Rome can, from satellite data, get a good forecast of famine areas and global food production.

That's all satellite stuff. Industry benefits are nearly incalculable, and I don't mean frivolities like Teflon frying pans. Stuff like test procedures and quality control: the inspection methods developed for man-rating spacecraft and boosters are now routinely used in building better plows, tractors, automobiles, skis, hiking boots and packframes, electronic equipment, and darned near anything else you can think of.

In my early days in the space program one of the hardest jobs we had was monitoring physiological conditions in a stress environment. Just getting an ordinary electrocardiograph (EKG) through a pressure wall required great ingenuity. We invented a number of such devices; we had to. My own inventions are long since obsolete—but the space medicine technology that grew out of our early efforts is now routinely used in hospitals and clinics all over the world. Mass spectrometers to analyze exhaled breath; microminiature EKG systems worn by hospital patients and displaying abnormalities to the duty nurse; blood analysis equipment; even heart condition diagnosis from moving vehicles; all routine, and all developed as part of the NASA package.

Your tires last longer, you can

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buy large fiberglass structures, firemen can keep your house from burning, your electrical system is simpler, crash helmets work better (remind me sometime to tell you about the purchase-order for "nine freshly-killed human male corpses, ages 21 to 40 at time of death, must not have any abnormalities of brain or upper spine; expendable research item; no salvage value." The Purchasing Officer's reaction to that was, uh, interesting); driver-training simulators work better, paint lasts longer, and golf clubs do a better job of driving the ball.

"Whoa. That's all technology, and technology is evil. It causes pollution, and kills people in wars, and—"

At that point my usual reaction is a loud "Aaargh!" and a burning desire to find a drink. Quickly. Especially when it was said by a young person wearing a thin electric wristwatch and polyester imitations of honest blue denim, driving a Mercedes, and feeling committed because they haven't eaten table grapes for *weeks*. I should control that reaction, of course; but if I were able to do that I'd probably still be in aerospace management instead of living the unnatural life of a writer.

Still, such people ought to be answered. Our whole future may depend on it. Let's try.

* * *

California's Governor, Jerry Brown, has built himself quite a reputation by pushing "Alternate Technology" and the philosophy that goes with it. "Make do. Expect less. Conserve. Smaller is better. Recycle. Be satisfied with what you have. There's only one Earth."

Now there are some attractive points about all that. Moreover, the vision of a stable, low-to-zero-growth economy, concentrating on adventures of the mind, with a lot of "cottage industry" can be a noble one. It's probably possible, too—for us, and for a while.

It is not a philosophy likely to appeal to the poor of this world. Like it or not, a conservation oriented low-growth world economy dooms most of the world's people to wretched poverty. But what has that to do with *us*? Can we not, ourselves, change our ways and let others go theirs?

Probably not. Like it or not, we've got most of the technology—and we don't have enough to develop the Earth to a point of satiation. If all the world gets rich through the same wasteful processes we employed, we're probably in big trouble. Worse, what of our grandchildren? The Earth's resources will not last forever; and what then?

I've argued here before that this generation is crucial: we have the resources to get mankind off this planet. If we don't do it, we may soon be facing a world of 15 billion

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people and more, a world in which it's all we can do to stay alive; a world without the investment resources to go into space and get rich. Usually I think it won't come to that; it's only in odd moments—such as when faced with The Question—that I get depressed.

I don't think it will come to that, because the vision of the future is so clear to me.

We need realize only one thing: we do not inhabit "Only One Earth."

Mankind doesn't live on Earth. We live in a solar system of nine planets, 34 moons, and over half a million asteroids. That system circles a rather small and unimportant star that is part of a galaxy containing tens of billions of stars. Only One Earth, indeed! There are *millions* of Earths out there, and if we use up this one, we'll just have to go find another, that's all.

But we needn't use up this one. In the March column I went through the numbers: how we can, with present-day technology, deliver here to Earth as much metal for each person in the world as the US disposed of per capita in the 60's. We can do that without polluting our planet at all, and we can keep it up for tens of thousands of years. The metal is out there in the asteroid belt. We don't even have to look very hard; most of the asteroids were once spherical, large enough to have metallic cores, and now the worthless gubbage topside has been knocked away, exposing all that lovely iron and lead and tin and such we'll need to give the wretched of the Earth *real* freedom.

Why not? The refinery power's there; the Sun gives it off for free. We have a propulsion system to get us to the asteroids. Project NERVA was cancelled, but the research was done, and it wouldn't be that hard to start up again. Nuclear-powered rockets would be rather simple to build, if we wanted them.

But first we'll need a Moonbase. We can get that by carrying stuff up bit by bit from the top of disintegrating totem poles. But there are easier ways.

We could do it in one whack. Project ORION was also cancelled, but we could build old Bang-Bang in a very few years if we wanted to. ORION used the simplest and most efficient method of nuclear propulsion of all: take a BIG plate, quite thick and hard. Attach by shock-absorbers a large space-going capsule to it. Put underneath one each atomic bomb. Fire away.

Believe me, your ship will move. When you've used up the momentum imparted by the first bomb, fling another down underneath. Repeat as required. For the expenditure of a small part of the world's nuclear-weapon stockpile you have put several *million* pounds into orbit, or on the Lunar surface.

But that will cause fallout.

Yes; some. Not very much, compared to what we have already

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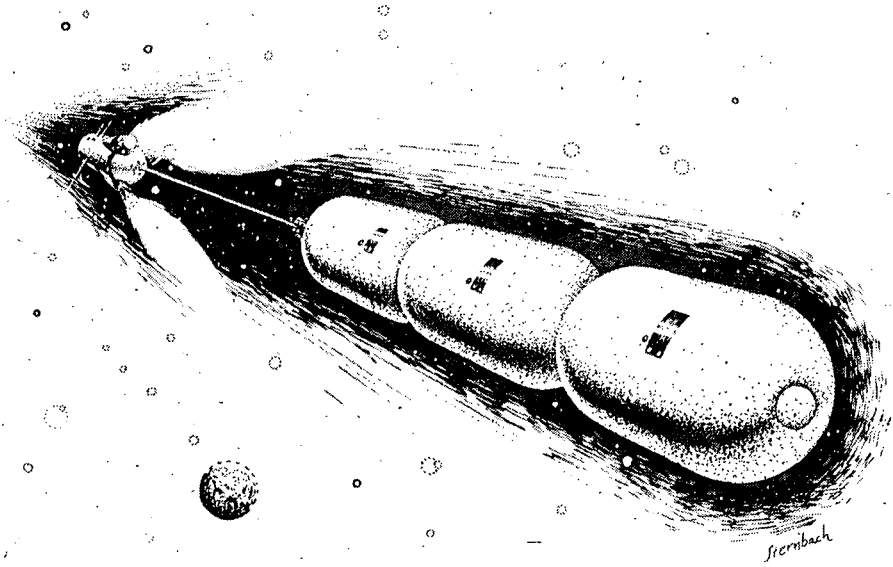

added to background radiation, but perhaps enough that we don't want to use ORION—although (he said happily), ORION is one reason why I think we'll eventually do what has to be done, even if this generation fails in its duties to the future. ORION is cheap and the bombs won't go away; if we're still alive in that grim world of 15-20 billion and no space program, *somebody's* going to revive Bang-Bang and get out there.

ORION gets a few big payloads to orbit or the Moon. A more systematic way would be to build a big laser-launching system and make it accessible to anyone with a payload to put into orbit. Freeman Dyson calls laser-launch systems "space highways." The government builds the launch system, and can use it for its own purposes. But it also gives private citizens, consortiums, firms, a means of reaching orbit.

Dyson envisions a time when individual families can buy a space capsule, and once Out There, can do as they like. Settle on the Moon, stay in orbit, go find an asteroid: whatever. It will be a while before we can build cheap self-contained space capsules operable by the likes of you and me, but it may not be anywhere near as long as you think.

The problem is the engines, of course. There's nothing else in the space-home economy that couldn't, at least in theory, be built for about the total cost of a family home, car,

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and recreational vehicle. But then most land-based prefabricated homes don't have their own motive power either; they have to hire a truck for towing.

It could make quite a picture: a train of space capsules departing Earth orbit for Ceres and points outward, towed by a ship something like the one I described in "Tinker". Not quite Ward Bond in "Wagon Train," but it could still make a good TV series. The capsules don't have to be totally self-sufficient, of course. It's easy enough to imagine way stations along the route, the space equivalent of filling stations in various orbits.

Dyson is fond of saying that the US wasn't settled by a big government settlement program, but by individuals and families who often had little more than courage and determination when they started. Perhaps that dream of the ultimate in freedom is too visionary; but if so, it isn't because the technology won't exist.

However we build our Moonbase, it's a very short step from there to asteroid mines. Obviously the Moon is in Earth-orbit, and with the shallow Lunar gravity well it's no trick at all to get away from the Moon; Earth-orbit is halfway to anywhere in the solar system.

We don't know what minerals will be available on the Moon. Probably it will take a while before it gets too expensive to dig them up, but as soon as it does, the Lunatics themselves will want to go mine the asteroids.

There's probably more water ice in the Belt than there is on Luna, so for starters there will be water prospectors moving about among the asteroids. The same technology that sends water to Luna will send metals to Earth-orbit. I've already described one ship that can do the job. There are others. The boron fusion-fission process is a good example.

Take boron-11 ($^{11}B_5$). Bombard with protons. The result is a complex reaction that ends with helium and no nuclear particles. It could be a direct spacedrive. For those interested, the basic equation is

$$^{11}B_5 + p = 3(^4He_2) + 16MeV,$$

and 16 million electron volts gives pretty energetic helium. The exhaust velocity is better than 10,000 kilometers/second, giving a theoretical specific impulse (Isp) of something over a million. For comparison the Isp of our best chemical rockets is about 400, and NERVA manages something like 1200. The boron drive needn't be used very efficiently to send ships all over the solar system.

Meanwhile, NERVA or the fission-ion drive I described in an earlier column will do the job. In fact, it's as simple to get refined metals from the asteroid belt to near-Earth orbit as it is to bring them down from the Lunar surface. It takes longer, but who cares? If I can promise GM steel at less than

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they're now paying, they'll be glad to sign a "futures" contract, payment on delivery.

It's going to be colorful out in the Belt, with huge mirrors boiling out chunks from mile-round rocks, big refinery ships moving from rock to rock; mining towns, boomtowns, and probably travelling entertainment vessels. Perhaps a few scenes from the wild west? "Claim jumpers! Grab your rifle—"

Thus from the first Moonbase we'll move rapidly, first to establish other Moon colonies (the Moon's a *big* place) and out to the asteroid belt. After that we can either build O'Neill colonies (see "Blueprint for Survival", May 1976 *Galaxy*) or stay with planets and Moons. But I suspect we'll do both: while one group starts constructing flying city-states at the Earth-Moon Trojan Points, another will decide to make-do with Mars.

Mars and Venus aren't terribly comfortable places. In fact you probably won't want to land on Venus at all until it has been terraformed. On the other hand, Venus will be far easier to make into a shirt-sleeves inhabitable world. We've described how in an earlier column. It requires only biological packages and some fertilizers and nutrients, and can be done from Moonbase, or in a pinch, from Earth itself. But while Venus may be the simpler job, Mars is likely to come first, simply because you can live there prior to terraforming; there will be people establishing dome colonies on the Red Planet.

I wrote a story ("Birth of Fire") describing one Mars-terraforming project: melt the polar caps and activate a number of Martian volcanoes to get an atmosphere built up. Isaac Asimov described the final step many years ago: get your ice from Out There, at Jupiter or Saturn, and fling it downhill to Mars. Freeman Dyson points out that there's enough ice on Enceladus (a Saturnian moon) to keep the Martian climate warm for 10,000 years. The deserts of Mars can become gardens in less than a century.

Dyson's scheme doesn't even involve human activity on Enceladus; robots and modern computers could probably accomplish the job. They've only to construct some big catapults on the surface of Enceladus, and build some solar sails. Dyson suggests robots because the project as described would take a long time, and human supervisors might not care for the work. But I suspect we could get plenty of volunteers if we needed them. Why not? No one could complain that the work was trivial, and you couldn't ask for an apartment with a better view than Saturn's Rings!

Moonbases. Lunar cities. Mining communities in the asteroid belt. Domed colonies on Mars, with prospects for terraforming the planet and turning it into a paradise. An advanced engineering project head-

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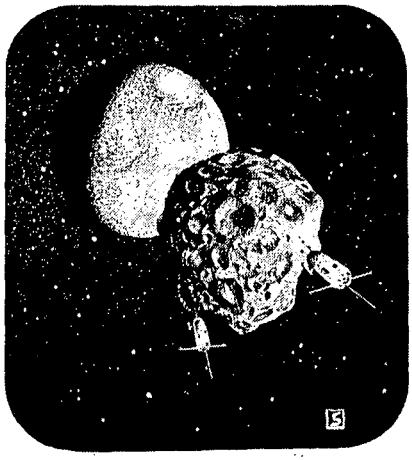
quarters on Enceladus. Pollution controlled on Earth, because most polluting activities would go on in space. Near-earth space factories. Several to hundreds of city-states at the Trojan Points of the Earth-Moon system. A space population of millions, with manned and unmanned ships stitching all the space habitats together. This is not a dream world; this is a world we could make in a hundred years!

In 1872 a number of Kiowa and Comanche Chiefs were taken to Washington by Quakers in an attempt to show the Indians just what they were facing. When they returned to talk about the huge cities, and "a stone tipi so large that all the Kiowa could sit under it," they were not believed. One suspects that if the Quaker schoolmasters had been magically transported to the Washington of 1976 and then returned to their own time they would not be believed either. A nation of over 200 million people? Millions of tons of concrete poured into gigantic highways? Aircraft larger than the biggest sailing ships? City streets brightly lit at night? Millions of tons of steel, farmlands from Kansas to California . . .

Building a space civilization in the next hundred years will be simpler than than it was getting to where we are from 1876. We already know how to do it. We probably don't know how we *will* do it; certainly the very act of space exploration will generate new ideas and



techniques as alien to us as nuclear energy would have been to Lord Rutherford or Benjamin Franklin. But we already know how we *could* do it. No basic new discoveries necessary.

In the 1940's I did a class report on space travel. I drew heavily from *Astounding*, from Heinlein's Future History, from Willy Ley's books on rockets and space travel (and certainly never thought I would someday be writing a column in the same magazine as Willy). My teachers were tolerant. They let me do it. They didn't believe in suppressing their pupils. Afterwards, though, the physics teacher called me in for a conference: I should learn some good basic science and get my head out of the clouds. That Buck Rogers

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Stuff was fine for amusement—he read it himself—but in the real world . . .

In the real world I got a letter from that teacher, who had the honesty to send a note in August, 1969, apologizing to me and expressing gratitude that he'd not been able to discourage me from those crazy dreams. I wish he were still alive so I could find out his reaction to *this* column.

It's not crazy dreams. It's not even Far Out. It's only basic engineering, and some economics, and a bit of hope. I may even have been too conservative. It probably won't take a hundred years.

Given the basic space civilization I've described, we'll have accomplished one goal: no single accident, no war, no one insane action will finish us off. We won't *have* to have outgrown our damn foolishness to insure our survival as a species. Perhaps we'll all be adults, mature, satisfied with what we have, long past wars and conflicts and the like. But I doubt it. At least, though, there will be no way to exterminate mankind, even if we manage to make the Earth uninhabitable. And it's unlikely that any group, nation, or ideology can enslave everyone. That's worth something.

One suspects, too, that there will be an *enormous* diversity of cultures. Travel times between various city-states—asteroid, Martian, Lunar, O'Neill colony, Saturnian forward base, Jovian Trojan Point—will be weeks to months to years with presently forseeable technology. That's likely to change, but by the time the faster travel systems are in widespread use the cultural diversities will be established. Meanwhile, communication among all the various parts of the solar system will be simple and relatively cheap, so that there will have been that unifying influence; cultures will become different because people want to be different, not because they don't know any better.

OK. In 100 years we'll have built a space civilization. We'll no longer have really grinding poverty, although there will undoubtedly be people who consider themselves poor, just as we have today people who while living better than the aristocrats of 1776 think themselves in terrible straights. We'll have insured against any man-made disaster wiping out the race. So what's next, besides more of the same?

Why, we haven't even got started yet! "Be fruitful and multiply, and fill the face of the Earth," said the command; soon that will have been done; and some day we'll even run up against a filled solar system.

The first step is obvious. We can begin taking some of the more useless planets apart. They've got all that lovely mass, and it's concentrated so that we can't use it; better to make proper use of, say, Jupiter, and Mercury, and someday perhaps even Mars and Venus, despite our

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having terraformed them.

At a thousand tons of mass per person, Mercury, taken apart, could provide living space for 3×10^{20} people—that's 300 billion billion, rather a large population. People in the US at present dispose of about 10^{18} ergs per capita each year; small potatoes for a space civilization. Let's figure that our space people will need a million times that much, 10^{24} ergs per each per year, or a total of 3×10^{44} ergs for the people living on the skeleton of Mercury.

It's too much. The Sun only puts out 2×10^{39} ergs each year, and we can't catch all that. It seems we'll run out of energy before we run out of mass, and that mass is too handy to use up freely as energy. Back to energy conservation! To support a really large population, though, we'll have to destroy some matter. Obviously that can't go on forever: so, while we're destroying matter, we may as well go elsewhere.

Meanwhile, though the stay-at-homes will busily take planets apart for their mass, so filling space with flying cities that they'll soon catch great quantities of solar energy. You can just hear the asteroid civilizations (what's left of them) complaining about those closer in taking up all the light. Perhaps the Rockrats will be the first to say the Hell with it and leave, looking for a place to live where there's *elbow room*. Just too crowded in the Solar System. "Not like when I was a kid, Martha. Not room to swing a cat nowadays."

They can take their whole civilization with them. The negotiations may take some time; the homebodies aren't going to want to let all that nice matter leave the system forever. Perhaps the Rockrats will promise to send back a nice fat planet from wherever they're going. It will take a while to pay off the debt, but they can pay it back with very high interest.

The trip will take many years, but so what? The Rockrats have taken their civilization with them. They'll miss the Sun, and by the time they arrive they'll have used up most of their asteroid, but by then people will live long lifetimes—and they'll darned well know how to exploit the new stellar system. "We'll do it right, Martha! None of those upstart places like Freedonia!"

Of course they'll already know about the planets in their new system. There's no real limit to the size of telescope you can build in space, and no problem about seeing; and with the lengthy baseline of the orbit of Ceres, or Jupiter's Trojans, or a Saturnian moon, astronomers will long since have discovered all the planets of all the nearby stars. There will probably have been probes sending back high-resolution pictures and making certain our colonists aren't heading for an already-occupied system.

And so it goes; across the

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Galaxy, as mankind fills system after system, and somebody begins to feel crowded. You'll note I haven't even postulated faster-than-light-travel. I have given us matter annihilation, although that's not strictly necessary.

And beyond that? When we've tapped all the resources of easily available planets, and are still running out of metals and just plain mass? Well, there are stars—

Take an old star. A red giant, perhaps. Useless. No planets left—all consumed in the nova explosion that formed an ordinary star into a red giant. The poor thing is doomed in a few million years anyway; why not hurry it along? When it blows up, it will give off all kinds of useful materials.

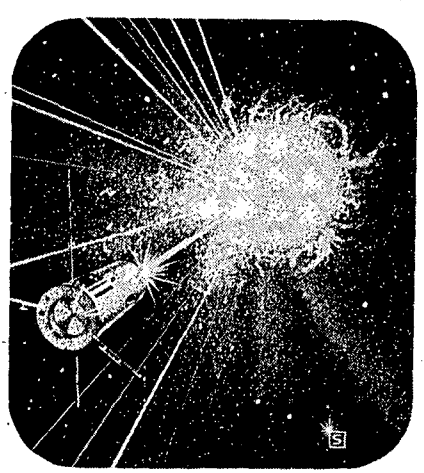
Of course the star is a long way from civilization. The minerals *could* be picked up after the explosion, but maybe there's a better way: bring your planet-sized spacecraft reasonably near the target star. Turn on the matter annihilators and focus the resulting energy into a rather powerful laser beam. Shine it properly on the star. That's what you're going to do to blow it up anyway, but if you're selective enough about it you can turn the star itself into a rocket. Heat up this side, let it spew out starstuff, and it will move. Granted that's a slow process, and perhaps there'll be no economic incentive; but stranger things have happened in history. After all, the expedition will save its parent civilization. And life aboard the control planet need not be any more dull than, say, living in a colliery town; or going every day down to work at BBD&O . . .

★ ★ ★

But we needn't think about moving stars, or travelling to other stellar systems, anymore than Columbus and the Vikings had Cape Canaveral in mind. For the moment we need only concentrate on the next hundred years. There's quite enough to do right here.

In fact, I can just hear it now: "What good does it do to get people dreaming about that Buck Rogers Stuff? Why waste money on interstellar research when there's need for the money right here on the Trojan Points?"

Only One Earth indeed. ★



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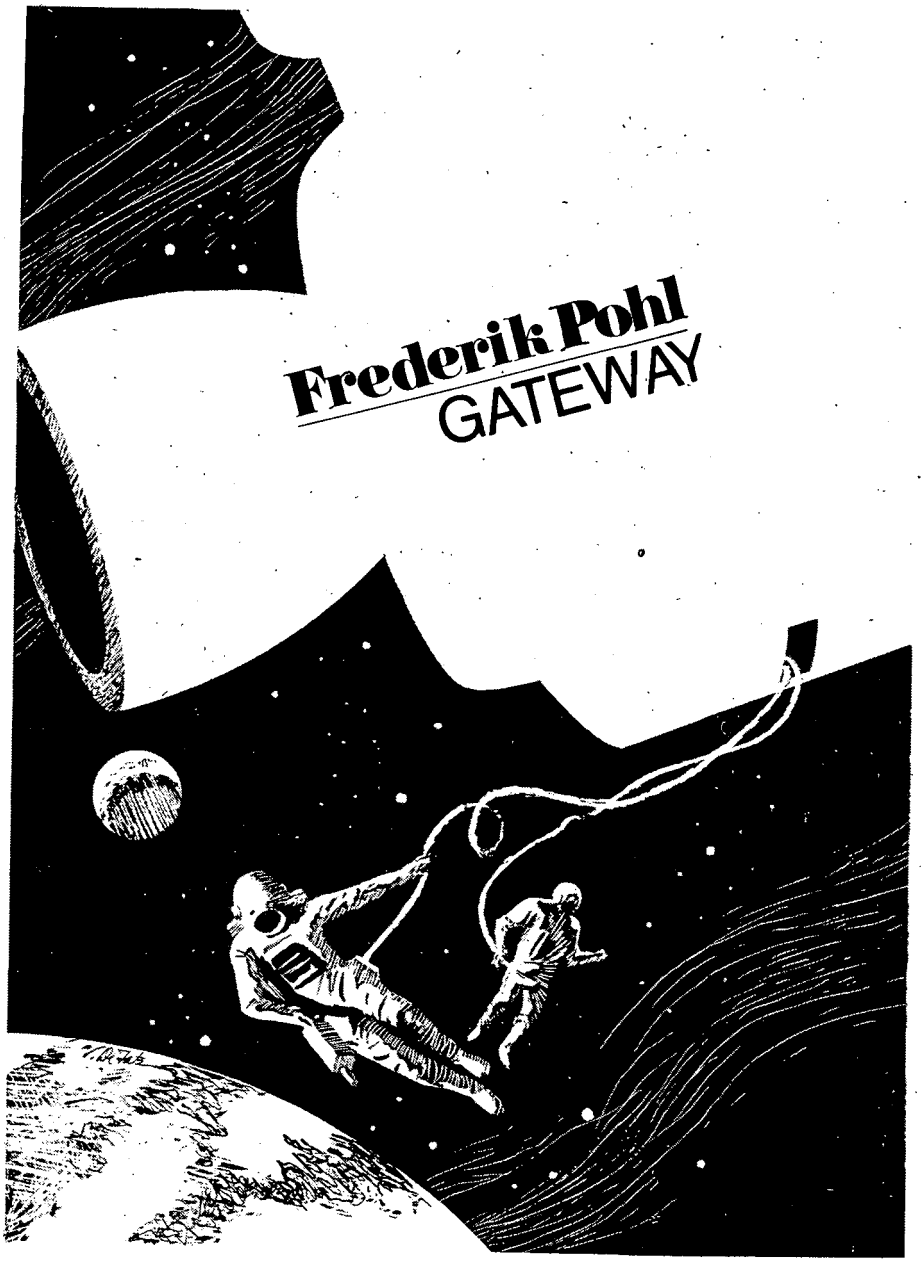
Frederik Pohl
GATEWAY



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Part II of III

WHAT HAS GONE BEFORE

By name I am Robinette Broadhead, and by profession I am rich retired millionaire. I am so rich that I can afford the best psychiatrist in New York, who happens to be a machine whom I call Sigfrid von Shrink. I suppose all that sounds pretty gay and jolly, but there's nothing funny about Sigfrid. He hurts me a lot.

Sigfrid would say that was untrue. He would say that the pain comes out of the inner parts of me, and especially out of my life, which, to be sure, has not been all pleasure. I grew up in the Wyoming food mines. You know what that's like. Sheer hell. You dig the shale, boil out the oil, grow the single-cell protein on the oil substrate—and after a while you learn to hold out a little for yourself, to ferment and drink so you can forget what kind of a life you're living. There were six or seven million of us doing that in just my part of the world when I was young. Not one of us had anything to look forward to but spending our whole lives in the hydrocarbon smog of Wyoming, with kerogen ground into the pores of our skin and the roots of our hair. But for me it turned out different. I had a stroke of luck. I won a lottery, and I came out of it with enough money to buy a one-way ticket to Gateway, and thus to possess the right to take part in the biggest lottery of them all: the chance to explore the universe for fun, profit and a first-rate shot at an early and unpleasant death. (I said it was a stroke of luck. I didn't say it was good luck.)

Gateway was Something Else. It hung out in space, waiting for people to come and find it. It wasn't a natural object. It was an artifact, the hollowed-out shell of an asteroid or maybe the core of a comet, no one was quite sure. Its surface was studded with interstellar spaceships, all fueled and aimed and ready to take off for the ends of the Galaxy. There were a couple of problems. For one, although Gateway wasn't natural, it wasn't man-made either. It was made by that long-lost and not altogether comprehensible race called the Heechee, and abandoned by them along about the time **Australopithecus africanus** *first learned how to bash an enemy's head in with the thighbone of an antelope. For another, you never knew quite where you were going. The automatic navigation was quite efficient, but it had been preset by Heechee hands half a million years ago. When you got into a ship you might come out in orbit around a fair green planet loaded with treasure. You might also come out in the photosphere of a star. Or you might never come back at all, and no one would ever know why.*

Everybody on Gateway was part of the exploration team, that was why they were there. Some were just waiting for the flight that would make them rich, like my friend Gelle-Klara Moynlin. Some were waiting for I don't know what, like my other friend Shikitei Bakin, who had lost his legs and a lot of his courage in some accident or other, and stayed on Gateway, maybe, mostly because it had so close to no gravity at all that he could get around by strapping wings to his arms and flying where he wanted to go. After I got to Gateway, and took the laughably brief course in interstellar

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navigation and so on (what did you have to know when the ships knew where they were going, and wouldn't tell?), I found I was waiting too. What I was waiting for was to find something I had misplaced, namely my guts. My girl-friend Sheri, who came up with me, finally got tired of waiting and signed for a trip. She asked me to go along.

It took all the rationalizing I could manage to think of a reason for not going with her, but I did it. I was getting very good at not seizing opportunity when it presented itself, and at not facing up to the reason why.

XII

I CAME BACK to my room one morning and found the P-phone whining faintly, like a distant, angry mosquito. I punched the message code and found that the Assistant Personnel Director required my presence in her office at ten hundred hours that morning. Well, it was later than that already. I had formed the habit of spending a lot of time, and most nights, with Klara. Her pad was a lot more comfortable than mine. So I didn't get the message until nearly eleven, and when I got to the Corporation personnel offices it didn't help her mood that I was late.

She was a very fat woman named Emma Fother. She brushed off my excuses and accused, "You graduated your courses seventeen days ago. You haven't done a thing since."

"I'm waititing for the right mission," I said.

"How long are you going to wait? Your per-capita's paid up for three more days, then what?"

"Well," I said, almost truthfully, "I was going to come in to see you about that today anyway. I'd like a job here on Gateway."

"Pshaw." (I'd never heard anyone say that before, but that's how it sounded.) "Is that why you came to Gateway, to clean sewers?"

I was pretty sure that was a bluff, because there weren't that many sewers; there wasn't enough gravity flow to support them. "The right mission could come along any day."

"Oh, sure, Bob. You know, people like you worry me. Do you have any idea how *important* our work here is?"

"Well, I think so—"

"There's a whole universe out there for us to find and bring home! Gateway's the only way we can reach it. A person like you, who grew up on the plankton farms—"

"Actually it was the Wyoming food mines."

"Whatever! You know how desperately the human race needs what we can give them. New technology. New power sources. Food! New worlds to live in." She shook her head and punched through the sorter on her desk, looking both angry and worried. I supposed that she was check-rated on how many of us idlers and parasites she managed to get to go out, the way we were supposed to, which accounted for her hostility—assuming you could account for her desire to stay on Gateway in the

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Mission Report

Vessel 3-31, Voyage 08D27. Crew C. Pitrin, N. Ginza, J. Krabbe.

Transit time out 19 days 4 hours. Position uncertain, vicinity (±2 l.y.) Zeta Tauri.

Summary.—"Emerged in transpolar orbit planet .88 Earth radius at .4 A.U. Planet possessed 3 detected small satellites. Six other planets inferred by computer logic. Primary K7.

"Landing made. Evidently this planet has recently gone through a warming period. There are no ice caps, and the present shorelines do not appear very old. No detected signs of habitation. No intelligent life.

"Finescreen scanning located what appeared to be a Heechee rendezvous station in our orbit. We approached it. It was intact. In forcing an entrance it exploded and N. Ginza was killed. Our vessel was damaged and we returned, J. Krabbe dying en route. No artifacts were secured. Biotic samples from planet destroyed in damage to vessel."

---

first place. She abandoned the sorter and got up to open a file against the wall. "Suppose I do find you a job," she said over her shoulder. "The only skill you have that's any use here is prospecting."

"I'll take—almost anything."

She looked at me quizzically, and then returned to her desk. She was astonishingly graceful, considering she had to mass a hundred kilos. Maybe a fat woman's fantasy of not sagging accounted for her desire to hold this job and stay on Gateway. "You'll be doing the lowest kind of labor," she warned. "We don't pay much for that. One-eighty a day."

"I'll take it!"

"Your per-capita has to come out of it. Take that away and maybe twenty dollars a day for toke money, and what do you have left?"

"I could always do odd jobs if I needed more."

She sighed. "You're just postponing the day, Bob. I don't know. Mr. Hsien, the Director, keeps a very close watch on job applications. I'll find it very hard to justify hiring you. And what are you going to do if you get sick and can't work? Who'll pay your tax?"

"I'll go back, I guess."

"And waste all your training? You disgust me, Bob."

But she punched me out a work-ticket that instructed me to report to the Crew Chief on Level Grand, Sector North, for assignment in plant maintenance.

I didn't like that interview with Emma Fother, but I had been warned I wouldn't. When I talked it over with Klara that evening she told me actually I'd got off light.

"You're lucky you drew Emma. Old Hsien sometimes keeps people hanging until their tax money's all gone."

"Then what?" I got up and sat on the edge of her cot, feeling for my footgloves. "Out the airlock?"

"Don't make fun, it could conceivably come to that. Hsien's an old Mao type, very hard on social wastrels."

"You're a fine one to talk!"

She grinned, rolled over and rubbed her nose against my back. "The difference between you and me, Bob," she said, "is that I have

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a couple of bucks stashed away from my first mission. It didn't pay big, but it paid somewhat. Also I've been out, and they need people like me for teaching people like you."

I leaned back against her hip, half turned and put my hand on her, more reminiscently than aggressively. There were certain subjects we didn't talk much about, but—"Klara?"

"Uh?"

"What's it like, on a mission?"

She rubbed her chin against my forearm for a moment, looking at the holoview of Venus against the wall. " . . . Scary," she said.

I waited, but she didn't say any more about it, and that much I already knew. I was scared right there on Gateway. I didn't have to launch myself on the Heechee Mystery Bus Trip to know what being scared was like, I could feel it already.

"You don't really have a choice, dear Bob," she said, almost tenderly, for her.

I felt a sudden rush of anger. "No, I don't! You've exactly described my whole life, Klara. I've never had a choice—except once, when I won the lottery and decided to come here. And I'm not sure I made the right decision then."

She yawned, and rubbed against my arm for a moment. "If we're through with sex," she decided, "I want something to eat before I go to sleep. Come on up to the Blue Hell with me and I'll treat."

* * *

Plant Maintenance was, actually, the maintenance of plants: specifically, the ivy plants that help keep Gateway liveable. I reported for duty and, surprise—in fact, nice surprise—my crew boss turned out to be my legless neighbor, Shikitei Bakin.

He greeted me with what seemed like real pleasure. "How nice of you to join us, Robinette," he said. "I expected you would ship out at once."

"I will, Shicky, pretty soon. When I see the right launch listed on the board, I'll know it."

"Of course." He left it at that, and introduced me to the other Plant Maintainers. I didn't get them straight, except that the girl had had some sort of connection with Professor Hegramet, the hotshot Heecheeologist back home, and the two men had each had a couple of missions already. I didn't really need to get them straight. We all understood the essential fact about each other without discussion. None of us was quite ready to put our names on the launch roster.

I wasn't even quite ready to let myself think out why.

Plant Maintenance would have been a good place for thought, though. Shicky put me to work right away, fastening brackets to the Heechee-metal walls with tacky-gunk. That was some kind of specially designed adhesive. It would hold to both the Heechee metal and the ribbed foil of the plant boxes, and it did not contain any solvent that would evaporate and contaminate the air. It was supposed to be very expensive. If you got it on you you just learned to live with it, at least until the skin it was on died and flaked off. If you tried to get it off any other way you drew blood.

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MAID, COOK or companion. Head tax + $10/da. Phyllis, 88-423.

GOURMET FOODS, hard-to-get Earth imports. Take advantage my Grouped Mass Guarantee unique co-op order service for any item you want. Save expensive single-item shipping costs! Sears, Bradlee, G.U.M. catalogues available. 87-747.

FRESH FISH from Australia, M., good-looking, seeks int. French F. companionship. 65-182.

When the day's quota of brackets were up we all trooped down to the Sewage Plant, where we picked up boxes filled with sludge and covered with cellulose film. We settled them onto the brackets, twisted the self-locking nuts to hold them in place and fitted them with watering tanks. The boxes probably would have weighed a hundred kilos each on Earth but on Gateway that simply wasn't a consideration; even the foil they were made of was enough to support them rigidly against the brackets. Then, when we were all done, Shicky himself filled the trays with seedlings, while we went on to the next batch of brackets. It was funny to watch him. He carried trays of the infant ivy plants on straps around his neck, like a cigarette girl's stock. He held himself at tray level with one hand, and poked seedlings through the film into the sludge with the other.

It was a low-pressure job, it served a useful function (I guess) and it passed the time. Shicky didn't make us work any too hard. He had set a quota in his mind for a day's work. As long as we got sixty brackets installed and filled he didn't care if we goofed off, provided we were inconspicuous about it. Klara would come by to pass the time of day now and then, sometimes with the little girl, and we had plenty of other visitors. And when times were slack and there wasn't anybody interesting to talk to, one at a time we could wander off for an hour or so. I explored a lot and each day decision was postponed.

We all talked about going out. Almost every day we could hear the thud and vibration as some lander cut itself loose from its dock, pushing the whole ship out to where the Heechee main drive could go into operation. Almost as often we felt the different kind of smaller, quicker shock when some ship returned. In the evenings we went to someone's parties. My whole class was gone by now, almost. Sheri had shipped out on a Five—I didn't see her to ask her why she changed her plans, and wasn't sure I really wanted to know; the ship she went on had an otherwise all-male crew. They were German-speaking, but I guess Sheri figured she could get by pretty well without talking much. The last one was Willa Forehand. Klara and I went to Willa's farewell party, and then down to the docks to watch her launch the next morning. I was supposed to be working, but I didn't think Shicky would mind. Unfortunately Mr. Hsien was there too, and I could see that he recognized me.

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"Oh, shit," I said to Klara.

She giggled and took my hand, and we ducked out of the launch area. We strolled away until we came to an up-shaft and lifted to the next level. We sat down on the edge of Lake Superior. "Bob old stud," she said, "I doubt he'll fire you for screwing off one time. Chew you out, probably."

I shrugged and tossed a chip of filter-pebble into the upcurving lake, which stretched a good two hundred meters up and around the shell of Gateway in front of us. I was feeling tacky, and wondering whether I was reaching the point when the bad vibes about risking nasty death in space were being overtaken by the bad vibes about cowering on Gateway. It's a funny thing about fear. I didn't feel it. I knew that the only reason I was staying on was that I was afraid, but it didn't feel as though I were afraid, only reasonably prudent.

"I think," I said, watching myself going into the sentence without being sure how it was going to come out, "that I'm going to do it. Want to come along?"

Klara sat up and shook herself. She took a moment before she said, "Maybe. What've you got in mind?"

I had nothing in mind. I was only a spectator, watching myself talk myself into something that made my toes curl. But I said, as though I had planned it out for days, "I think it might be a good idea to take a rerun."

"No deal!" She looked almost angry. "If I go, I go where the real money is."

That was also where the real danger was, of course. Although even reruns have turned out bad often enough.

The thing about reruns is that you start out with the knowledge that somebody has already flown that trip and made it back, and, not only that, made a find that's worth following up on. Some of them are pretty rich. There's Peggy's World, where the heater coils and the fur come from. There's Eta Carina

---

From Shikitei Bakin to Aritsune, His Honored Grandson

I am overwhelmed with joy to learn of the birth of your first child. Do not despair. The next will probably be a boy.

I apologize humbly for my failure to write sooner, but there is little to tell. I do my work and attempt to create beauty where I can. Perhaps some day I will go out again. It is not easy without legs.

To be sure, Aritsune, I could buy new legs. There was a close tissue match just a few months ago. But the cost! I might almost as well buy Full Medical. You are a loyal grandson to urge me to use my capital for this, but I must decide. I am sending you a half of my capital now to assist with my great-granddaughter's expenses. If I die here, you will receive all of it, for you and for the others who will be born to you and your good wife before long. This is what I want. Do not resist me.

My deepest love to all three of you. If you can, send me a holo of the cherry blossoms—they are in bloom soon, are they not? One loses sense of Home time here!

Lovingly,

Your Grandfather

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Seven, which is probably full of good stuff if you could only get at it. The trouble is, it has had an ice age since the Heechees were last on it. The storms are terrible. Out of five landers, one returned with a full crew, undamaged. One didn't return at all.

Generally speaking, Gateway doesn't particularly want you to do a rerun. They will make a cash offer instead of a percentage where the pickings are fairly easy, as on Peggy. What they pay for is not so much trade goods as maps. So you go out there and you spend your time making orbital runs, trying to find the geological anomalies that indicate Heechee digs may be present. You may not land at all. The pay is worth having, but not lavish. You'd have to make at least twenty runs to build up a lifetime stake, if you take the Corporation's one-pay deal. And if you decide to go on your own, prospecting, you have to pay a share of your profits to the discovery crew, and a cut on what's left of your share to the Corporation. You wind up with a fraction of what you might get on a virgin find, even if you don't have a colony already established on the scene to contend with.

Or you can take a shot at the bonuses: A hundred million dollars if you find an alien civilization, fifty million for the first crew to locate a Heechee ship bigger than a Five, a million bucks to locate a habitable planet.

Seems funny that they would only pay a lousy million for a whole new planet? But the trouble is, once you've found it, what do you do with it? You can't export a lot of surplus population when you can only move them four at a time. That, plus the pilot, is all you can get into the largest ship in Gateway. (And if you don't have a pilot, you don't get the ship back.) So the Corporation has underwritten a few little colonies, one's very healthy on Peggy and the others are spindly. But that does not solve the problem of twenty-five billion human beings, most of them underfed.

You'll never get that kind of bonus on a rerun. Maybe you can't get some of those bonuses at all; maybe the things they're for don't exist.

It is strange that no one has ever found a trace of another intelligent creature. But in eighteen years, upwards of two thousand flights, no one has. There are about a dozen habitable planets, plus another hundred or so that people *could* live on if they absolutely had to, as we have to on Mars and on, or rather in, Venus. There are a few traces of past civilizations, neither Heechee nor human. And there are the souvenirs of the Heechee themselves. At that, there's more in the warrens of Venus than we've found almost anywhere else in the Galaxy, so far. Even Gateway was swept almost clean before they abandoned it.

Damn Heechee, why did they have to be so neat?

* * *

So we gave up on the rerun deals, because there wasn't enough money in them, and put the special finders' bonuses out of our heads, because there's just no way of plan-

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ning to look for them.

And finally we just stopped talking, and looked at each other, and then we didn't even look at each other.

No matter what we said, we weren't going. We didn't have the nerve. Klara's had run out on her last trip, and I guess I hadn't ever had it.

"Well," said Klara, getting up and stretching, "I guess I'll go up and win a few bucks at the casino. Want to watch?"

I shook my head. "Guess I'd better get back to my job. If I still have one."

So we kissed good-by at the upshaft, and when we came to my level I reached up and patted her ankle and jumped off. I was not in a very good mood. We had spent so much effort trying to reassure ourselves that there weren't any launches that offered a promise of reward worth the risks that I almost believed it.

Of course, we hadn't even mentioned the other kind of rewards: the danger bonuses.

You have to be pretty frayed to go for them. Like, the Corporation will sometimes put up half a million or so incentive bonus for a crew to take the same course as some previous crew tried . . . and didn't come back from. Their reasoning is that maybe something went wrong with the ship, ran out of gas or something, and a second ship might even rescue the crew from the first one. (Fat chance.) More likely, of course, whatever killed the first crew would still be there, and ready to kill you.

Then there was a time when you could sign up for a million, later they raised it to five million, if you would try changing the course settings after launch.

The reason they raised the bonus to five million was that crews stopped volunteering when none of them, not one of them, ever came back. Then they cut it out, because they were losing too many ships, and finally they made it a flat no-no. Every once in a while they come up with a bastard control panel, a snappy new computer that's supposed to work symbiotically with the Heechee board. Those ships aren't good gambling bets, either. There's a reason for the safety lock on the Heechee board. You can't change destination while it's on. Maybe you can't change destination without destroying the ship at all.

I saw five people try for a ten-million-dollar bonus once. Some Corporation genius from the permanent party was worrying about how to transport more than five people, or the equivalent in cargo, at once. We didn't know how to build a Heechee ship, and we'd never found a really big one. So he figured that maybe we could end-run around that obstacle by using a Five as a sort of tractor.

So they built a sort of space barge out of Heechee metal. They loaded it with scraps of junk, and ran a Five out there on lander power. That's just hydrogen and oxygen, and it's easy enough to pump that back in. Then they tied the Five to the barge with monofilament Heechee metal cables.

We watched the whole thing from Gateway on PV. We saw the cables

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take up slack as the Five put a strain on them with its lander jets. Craziest looking thing you ever saw.

Then they must have activated the long-range start teat.

All we saw on the PV was that the barge sort of twitched, and the Five simply disappeared from sight.

It never came back. The stop-motion tapes showed at least the first little bit of what happened. The cable truss had sliced that ship into segments like a hard-boiled egg. The people in it never knew what hit them. The Corporation still has that ten million, nobody else wants to try for it anymore.

* * *

I got a politely reproachful lecture from Shicky, and a really ugly, but brief, P-phone call from Mr. Hsien, but that was all. After a day or two Shicky began letting us take time off again.

I spent most of it with Klara. A lot of times we'd arrange to meet in her pad, or once in a while mine, for an hour in bed. We were sleeping together almost every night; you'd think we would have had enough of that. We didn't. After a while I wasn't sure what we were copulating for, the fun of it or the distraction it gave from the contemplation of our own self-images. I would lie there and look at Klara, who always turned over, snuggled down on her stomach and closed her eyes after sex, even when we were going to get up two minutes later. I would think how well I knew every fold and inch of her body. I would smell that sweet, sexy smell of her and wish—oh, wish! Just wish, for things I couldn't spell out: for an apartment under the Big Bubble with Klara, for an airbody and a cell in a Venusian tunnel with Klara, even for a life in the food mines with Klara. I guess it was love. But then I'd still be looking at her, and I would feel the inside of my eyes change the picture I was seeing, and what I would see would be the female equivalent of myself: A coward, given the greatest chance a human could have, and scared to take advantage of it.

When we weren't in bed we would wander around Gateway together. It wasn't like dating. We didn't go much to the Blue Hell or

Mission Report

Vessel 5-2, Voyage 08D33. Crew L. Konieczny, E. Konieczny, F. Ito, F. Lounsbury, A. Akaga.

Transit time out 27 days 16 hours. Primary not identified but probability high as star in cluster 47 Tucanae.

Summary. "Emerged in freefall. No planet nearby. Primary A6, very bright and hot, distance approximately 3.3 A.U.

"By masking the primary star we obtained a glorious view of what seemed to be two or three hundred nearby very bright stars, apparent magnitude ranging from 2 to -7. However, no artifacts, signals, planets or landable asteroids were detected. We could remain on station only three hours because of intense radiation from the A6 star. Larry and Evelyn Konieczny were seriously ill on the return trip, apparently due to radiation exposure, but recovered. No artifacts or samples secured."

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the holofilm halls, or even eat out. Klara did. I couldn't afford it, so I took most of my meals from the Corporation's refectories, included in the price of my per capita per diem. Klara was not unwilling to pick up the check for both of us, but she wasn't exactly anxious to do it, either—she was gambling pretty heavily, and not winning much. There were groups to be involved with—card parties, or just parties; folk dance groups, music listening groups, discussion groups. They were free, and sometimes interesting. Or we just explored.

Several times we went to the museum. I didn't really like it that much. It seemed . . . well . . . reproachful.

The first time we went there was right after I got off work, the day Willa Forehand shipped out. Usually the museum was full of visitors, like crew members on pass from the cruisers, or ship's crews from the commercial runs, or tourists. This time, for some reason, there were only a couple of people in it, and we had a chance to look at everything. Prayer fans by the hundreds, those little filmy, crystalline things that were the commonest Heechee artifact; no one knew what they were for, except that they were sort of pretty, but the Heechee had left them all over the place. There was the original anisokinetic punch, that had earned some lucky prospector something like twenty million dollars in royalties already. A thing you could put in your pocket. Furs. Plants in formalin. The original piezophone, that had earned three crews enough to make every one of them awfully rich, even though for some contractual reason in those days they had to share the royalties not only with each other but with the Corporation.

The most easily swiped things, like the prayer fans and the blood diamonds and the fire pearls, were kept behind tough breakproof glass. I think they were even wired to burglar alarms. That was surprising, on Gateway. There isn't any law there, except what the Corporation imposes. There are the Corporation's equivalent of police, and there are rules—you're not supposed to steal or commit murder—but there aren't any courts. If you break a rule all that happens is that the Corporation security force picks you up and takes you out to one of the orbiting cruisers. Your own, if there is one from wherever you come from. Any one, if not. But if they won't take you, or if you don't want to go on your own nation's ship and can persuade some other ship to take you, Gateway doesn't care. On the cruisers, you'll get a trial. Since you're known guilty to start with, you have three choices. One is to pay your way back home. The second is to sign on as crew if they'll have you. The third is to go out the lock without a suit. So you see that, although there isn't much law on Gateway, there isn't much crime, either.

But of course the reason for locking up the precious stuff in the museum was that transients might be tempted to lift a souvenir or two.

So Klara and I would muse over the treasures someone had found . . . and somehow not discuss with each other the fact that we were

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supposed to go out and find some more.

It was not just the exhibits. They were fascinating; they were things that Heechee hands (tentacles? claws?) had made and touched, and they came from unimaginable places incredibly far away. But the constantly flickering tube displays held me even more strongly. Summaries of every mission ever launched, displayed one after another. A constant total of missions versus returns; of royalties paid to lucky prospectors; the roster of the unlucky ones, name after name in a slow crawl along one whole wall of the room, over the display cases. The totals told the story: 2355 launches (the number changed to 2356, then 2357 while we were there; we felt the shudder of the two launches), 841 successful returns.

Klara and I didn't look at each other, standing in front of that particular display, but I felt her hand squeeze mine.

That was defining "successful" very loosely. It meant that the ship had come back. It didn't say anything about how many of the crew were alive and well.

We turned and left the museum after that, and didn't speak much on the way to the up-shaft.

The thing in my mind was that what Emma Fother had said to me was true: the human race needed what we prospectors could give them. Needed it a lot. There were hungry people, and Heechee technology probably could make all their lives a lot more tolerable, if prospectors went out and brought samples of it back.

Even if it cost a few lives.

Even if the lives included Klara's and mine. Did I, I asked myself, want my son—if I ever had a son—to spend his childhood the way I had spent mine?

We dropped off the up-cable at Level Babe and heard voices. I didn't pay attention to them. I was coming to a resolution in my mind. "Klara," I said, "listen. Let's—"

But Klara was looking past my shoulder. "For Christ's sake!" she said. "Look who's here!"

And I turned, and there was Shicky fluttering in the air, talking to a girl, and I saw with astonishment that the girl was Willa Forehand. She greeted us, looking both embarrassed and amused.

"What's going on?" I demanded. "Didn't you just ship out—like maybe eight hours ago?"

"Ten," she said.

"Did something go wrong with the ship, so you had to come back?" Klara guessed.

Willa smiled ruefully. "Not a thing. I've been there and back. Shortest trip on record so far: I went to the Moon."

"*Earth's* moon?"

"That's the one." She seemed to be controlling herself, to keep from laughter. Or tears.

Shicky said consolingly, "They'll surely give you a bonus, Willa. There was one that went to Ganymede once, and the Corporation divvied up half a million dollars among them."

She shook her head. "Even I know better than that, Shicky, dear. Oh, they'll award us something. But it won't be enough to make a difference. We need more than that." That was the unusual, and

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ORGANS FOR sale or trade. Any paired organs, best offer. Need posterior coronal heart sections, L. auricle, L. & R. ventricle and associated parts. Phone 88-703 for tissue match.

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somewhat surprising, thing about the Forehands: it was always "we". They were clearly a very closely knit family, even if they didn't like to discuss that fact with outsiders.

I touched her, a pat between affection and compassion. "What are you going to do?"

She looked at me with surprise. "Why, I've already signed up for another launch, day after tomorrow."

"Well!" said Klara. "We've got to have two parties at once for you! We'd better get busy. . . ." And hours later, just before we went to sleep that night, she said to me, "Wasn't there something you wanted to say to me before we saw Willa?"

"I forget," I said sleepily. I hadn't forgotten. I knew what it was. But I didn't want to say it any more.

There were days when I worked myself up almost to that point of asking Klara to ship out with me again. And there were days when a ship came in with a couple of starved, dehydrated survivors, or with no survivors, or when at the routine time a batch of last-year's launches were posted as non-returns. On those days I worked myself up almost to the point of quitting Gateway completely.

Most days we simply spent deferring decision. It wasn't all that hard. It was a pretty pleasant way to live, exploring Gateway and each other. Klara took on a maid, a stocky, fair young woman from the food mines of Carmarthen named Hywa. Except that the feedstock for the Welsh single-cell protein factories was coal instead of oil shale, her world had been almost exactly like mine. Her way out of it had not been a lottery ticket but two years as crew on a commercial spaceship. She couldn't ever go back home. She had jumped ship on Gateway, forfeiting her bond of money she couldn't pay. And she couldn't prospect either, because her one launch had left her with a heart arhythmia that sometimes looked like it was getting better and sometimes put her in Terminal Hospital for a week at a time. Hywa's job was partly to cook and clean for Klara and me, partly to babysit the little girl, Kathy Francis, when her father was on duty and Klara didn't want to be bothered. Klara had been losing pretty heavily at the casino, so she couldn't afford Hywa, but then she couldn't afford me either.

What made it easy to turn off our insights was that we pretended to

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each other, and sometimes to ourselves, that what we were doing was preparing ourselves, really well, for the day when the Right trip came alone.

It wasn't hard to do that. A lot of real prospectors did the same thing, between trips. There was a group that called itself The Heechee Seekers, that met on Wednesday nights; it had been started by a prospector named Sam Kahane, kept up by others while he was off on a trip that hadn't worked out, and now had Sam back in it between trips, while he was waiting for the other two members of his crew to get back in shape for the next one. (Among other things, they had come back with scurvy, due to a malfunction in the food freezer.) Sam and his friends were gay, and apparently set in a permanent three-way relationship, but that didn't affect his interest in Heechee lore. He had secured tapes of all the lectures of several courses on exo-studies from East Texas Reserve, where Professor Hegramet had made himself the world's foremost authority on Heechee research. I learned a lot I hadn't known, although the central fact, that there were far more questions than answers about the Heechee, was pretty well known to everybody.

And we got into physical-fitness groups, where we practiced muscle-toning exercises that you could do without moving any limb more than a few inches, and massage for fun and profit. It was probably profitable, but it was even more fun, particularly sexually. Klara and I learned to do some astonishing things with each other's bodies. We took a cooking course (you can do a lot with standard rations, if you add a selection of spices and herbs). We acquired a selection of language tapes, in the event we shipped out with non-English-speakers, and practiced taxi-driver Italian and Greek on each other. We even joined an astronomy group. They had access to Gateway's telescopes, and we spent a fair amount of time looking at Earth and Venus from outside the plane of the ecliptic. Francy Hereira was in that group when he could get time off from the ship. Klara liked him, and so did I, and we formed the habit of having a drink in our rooms—well, Klara's rooms, but I was spending a lot of time in them—with him after the group. Francy was deeply, almost sensually, interested in what was Out There. He knew all about quasars and Black Holes and Seyfert galaxies, not to mention things like double stars and novae. We often speculated what it might be like to come out of a mission into the wavefront of a supernova. It could happen. The Heechee were known to have had an interest in observing astrophysical events first-hand. Some of their courses were undoubtedly programmed to bring crews to the vicinity of interesting events, and a pre-supernova was certainly an interesting event. Only now it was a long lot later, and the supernova might not be "pre" any more.

"I wonder," said Klara, smiling to show that it was only an abstact point she was putting to us, "if that might not be what happened to some of the non-return missions."

"It is an absolute statistical cer-

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tainty," said Francy, smiling back to show that he agreed to the rules of the game. He had been practicing his English, which was pretty good to start with, and now he was almost accent-free. He also possessed German, Russian and fair amounts of the other Romance languages to go with his Portugese, as we had discovered when we tried some of our language-tape conversation on each other and found he understood us better than we understood ourselves. "Nevertheless, people go."

Klara and I were silent for a moment, and then she laughed. "Some do," she said.

I cut in quickly, "It sounds as if you want to go yourself, Francy."

"Have you ever doubted it?"

"Well, yes, actually I have. I mean, you're in the Brazilian Navy. You can't just take off, can you?"

He corrected me: "I can take off at any time. I simply cannot go back to Brazil after that."

"And it's worth that to you?"

"It's worth anything," he told me.

"Even—" I pressed—" if there's the risk of not coming back, or of getting messed up like the return today?" That had been a Five that had landed on a planet with some sort of plant life like a poison-ivy. It had been a bad one, we had heard.

"Yes, of course," he said.

Klara was getting restless. "I think," she said, "I want to go to sleep now."

There was some extra message in the tone of her voice. I looked at her and said, "I'll walk you back to your room."

"That's not necessary, Bob."

"I'll do it anyhow," I said, ignoring the message. "Good night, Francie. See you next week."

Klara was already halfway to the down-shaft, and I had to hurry to catch up to her. I caught the cable and called down to her, "If you really want me to, I'll go back to my own place."

She didn't look up, but she didn't say that was what she wanted, either, so I got off at her level and followed her to her rooms. Kathy was sound asleep in the outer room, Hywa drowsing over a holodisk in our bedroom. Klara sent the maid home and went in to make sure the child was comfortable. I sat on the edge of the bed, waiting for her.

"Maybe I'm pre-menstrual," Klara said when she came back. "I'm sorry. I just feel edgy."

"I'll go if you want me to."

"Jesus, Bob, quit saying that!" Then she sat down next to me and leaned against me so that I would put my arm around her. "Kathy's so sweet," she said after a moment, almost wistfully.

"You'd like to have one of your own, wouldn't you?"

"I *will* have one of my own." She leaned back, pulling me with her. "I wish I knew when, that's all. I need a lot more money than I have to give a kid a decent life. And I'm not getting any younger."

We lay there for a moment, and then I said into her hair, "That's what I want too, Klara."

She sighed. "Do you think I don't know that?" Then she tensed and sat up. "Who's that?"

Somebody was scrabbling at the door. It wasn't locked; we never did that. But nobody ever came in

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A NOTE ON THE HEECHEE RUMP

Professor Hegramet. We have no idea what the Heechee looked like except for inferences. Probably they were bipeds. Their tools fit human hands tolerably well, so probably they had hands. Or something like them. They seem to have seen pretty much the same spectrum as we do. They must have been smaller than us—say, a hundred and fifty centimeters, or less. And they had funny-looking rumps.

Question. What do you mean, funny-looking rumps?

Professor Hegramet. Well, did you ever look at the pilot's seat in a Heechee ship? It's two flat pieces of metal joined in a V shape. You couldn't sit in it for ten minutes without pinching your bottom off. So what we have to do, we stretch a webbing seat across them. But that's human addition. The Heechee didn't have anything like that.

So their bodies must have looked more or less like a wasp's, with this big abdomen hanging down, actually extending below the hips, between the legs.

Question. Do you mean they might have had stingers like wasps?

Professor Hegramet. Stingers. No. I don't think so. But maybe. Or maybe they had hell's own set of sex organs.

---

without being invited, either, and this time someone did.

"Sterling!" Klara said, surprised. She remembered her manners: "Bob, this is Sterling Francis, Kathy's father. Bob Broadhead."

"Hello," he said. He was much older than I'd thought that little girl's father would be, at least fifty, and looking very much older and more weary than seemed natural. "Klara," he said, "I'm taking Kathy back home on the next ship. I think I'll take her tonight, if you don't mind. I don't want her to hear from somebody else."

Klara reached out for my hand without looking at me. "Hear what?"

"About her mother." Francis rubbed his eyes, then said, "Oh, didn't you know? Jan's dead. Her ship came back a few hours ago. All four of them in the lander got into some kind of fungus; they swelled up and died. I saw her body. She looks—" He stopped. "The one I'm really sorry for," he said, "is Annalee. She stayed in orbit while the others went down, and she brought Jan's body back. I guess she was kind of crazy. Why bother? It was too late to matter to Jan. . . . Well, anyway. She could only bring two of them, that was all the room in the freezer, and of course her rations—" He stopped again, and this time he didn't seem able to talk any more.

So I sat on the edge of the bed while Klara helped him wake the child and bundle her up to take her back to his own rooms. While they were out I dialed a couple of displays on the PV, and studied them very carefully. By the time Klara came back I had turned off the PV and was sitting crosslegged on the bed, thinking hard.

"Christ," she said glumly. "If

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this night isn't a bummer." She sat down at the far corner of the bed. "I'm not sleepy after all," she said. "Maybe I'll go up and win a few bucks at the roulette table."

"Let's not," I said. I'd sat next to her for three hours the night before, while she first won ten thousand dollars and then lost twenty. "I have a better idea. Let's ship out."

She turned full around to look at me, so quickly that she floated up off the bed for a moment. "What?"

"Let's ship out."

She closed her eyes for a moment and, without opening them, said, "When?"

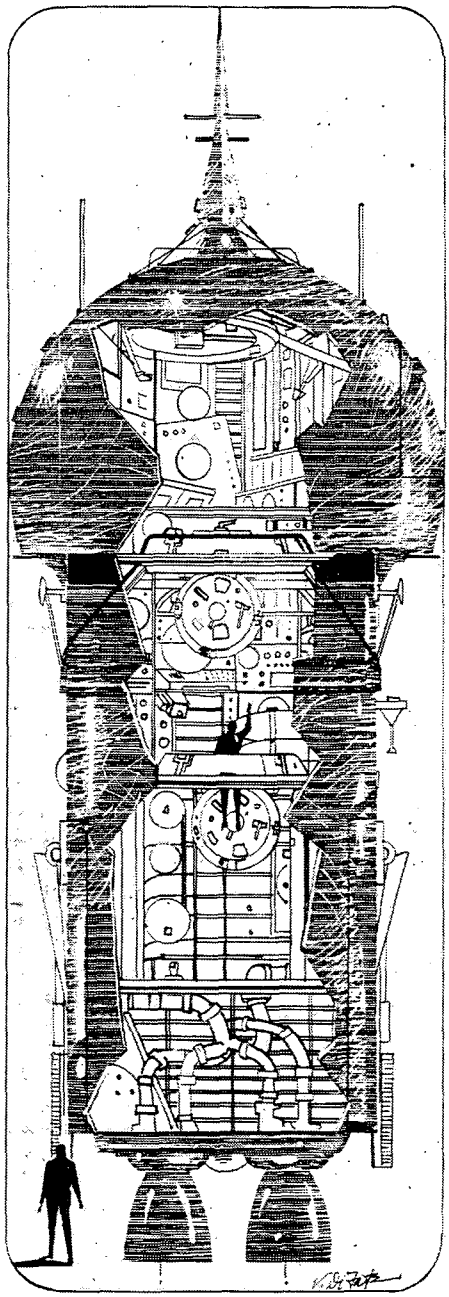
"Launch 29-40. It's a Five, and there's a good crew: Sam Kahane and his buddies. They're all recovered now, and they need two more to fill the ship."

She stroked her eyelids with her fingertips, then opened them and looked at me. "Well, Bob," she said, "you do have interesting suggestions." There were shades over the Heechee-metal walls to cut down the light for sleeping, and I had drawn them; but even in the filtered dimness I could see how she looked. Frightened. Still, what she said was: "They're not bad guys. How do you get along with gays?"

"I leave them alone, they leave me alone. Especially if I've got you."

"Um," she said, and then she crawled over to me, wrapped her arms around me, pulled me down and buried her head in my neck. "Why not?" she said, so softly that I was not at first sure I had heard her.

When I was sure, the fear hit me.



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There had always been the chance she would say no. I would have been off the hook. I could feel myself shaking, but I managed to say, "Then we'll file for it in the morning?"

She shook her head. "No," she said, her voice muffled. I could feel her trembling as much as I was. "Get on the phone, Bob. We'll file for it now. Before we change our mind."

* * *

The next day I quit my job, packed my belongings into the suitcases I had brought them in and turned them over for safekeeping to Shicky, who looked wistful. Klara quit the school and fired her maid—who looked seriously worried—but didn't bother about packing. She had quite a lot of money left, Klara did. She prepaid the rent on both her rooms and left everything just the way it was.

We had a farewell party, of course. We went through it without my remembering a single person who was there.

And then, all of a sudden, we were squeezing into the ladder, climbing down into the capsule while Sam Kahane methodically checked the settings. We locked ourselves into our cocoons. We started the automatic sequencers.

And then there was a lurch, and a falling, floating sensation before the thrusters cut in, and we were on our way.

XIII

"Good morning, Rob," says Sigfrid, and I stop in the door of the room, suddenly and subliminally worried.

"What's the matter?"

"There's nothing the matter, Rob. Come in."

"You've changed things around," I say accusingly.

"That's right, Robbie. Do you like the way the room looks?"

I study it. The throw pillows are gone from the floor. The nonobjective paintings are off the wall. Now he's got a series of holopictures of space scenes, and mountains and seas. The funniest thing of all is Sigfrid himself: He is speaking to me out of a dummy that's sitting back in a corner of the room, holding a pencil in its hands, looking up at me from behind dark glasses.

"You've turned out very camp," I say. "What's the reason for all this?"

His voice sounds as though he were smiling benevolently, although there is no change in the expression on the face of the dummy. "I just thought you'd enjoy a change, Rob."

I take a few steps into the room and stop again. "You took the mat away!"

"Don't need it, Bob. As you see, there's a new couch. That's very traditional, isn't it?"

"Um."

He coaxes, "Why don't you just lie down on it? See how it feels."

"Um." But I stretch out on it cautiously. How it feels is strange; and I don't like it, probably because this particular room represents something serious to me and changing it around makes me nervous.

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"The mat had straps," I complain.

"So does the couch, Bob. You can pull them out of the sides. Just feel around . . . there. Isn't that better?"

"No, it isn't."

"I think," he sayd softly, "that you should let me decide whether for therapeutic reasons some sort of change is in order, Rob."

I sit up. "And that's another thing, Sigfrid! Make up your fucking mind what you're going to call me. My name isn't Rob, or Robbie, or Bob. It's Robinette."

"I know that, Robbie—"

"You're doing it again!"

A pause, then, silkily, "I think you should allow me the choice of the form of address I prefer, Robbie."

"Um." I have an endless supply of those non-commital non-words. In fact, I would like to conduct the whole session without revealing any more than that. What I want is for *Sigfrid* to reveal. I want to know why he calls me by different names at different times. I want to know what he finds significant in what I say. I want to know what he really thinks of me . . . if a clanking piece of tin and plastic can think, I mean.

Of course, what I know and Sigfrid doesn't is that my good friend S. Ya. has practically promised to let me play a little joke on him. I am looking forward to that a lot.

"Is there anything you'd like to tell me, Rob?"

"No."

He waits. I am feeling somewhat hostile and non-communicative. I think part of it is because I am so much looking forward to the time when I can play a little trick on Sigfrid, but the other part is because he has changed around the auditing room. That's the kind of thing they used to do to me when I had my psychotic episode in Wyoming. Sometimes I'd come in for a session and they'd have a hologram of my Mother, for Christ's sake. It looked exactly like her, but it didn't smell like her or feel like her; in fact, you couldn't feel it at all, it was only light. Sometimes they'd have me come in there in the dark and something warm and cuddly would take me in its arms and whisper to me. I didn't like that. I was crazy, but I wasn't that crazy.

Sigfrid is still waiting, but he won't wait for ever. Pretty soon he's going to start asking me questions, probably about my dreams.

Mission Report

Vessel 1-8, Voyage 013D6. Crew F. Ito.

Transit time 41 days 2 hours. Position not identified. Instrument recordings damaged.

Transcript of crewman's tape follows: "The planet seems to have a surface gravity in excess of 2.5, but I am going to attempt a landing. Neither visual nor radar scanning penetrates the clouds of dust and vapor. It really is not looking very good, but this is my eleventh launch. I am setting the automatic return for 10 days. If I am not back by then with the lander I think the capsule will return by itself. I wish I knew what the spots and flares on the sun meant."

Crewman was not aboard when ship returned. No artifacts or samples. Landing vehicle not secured. Vessel damaged.

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"Have you had any dreams since I last saw you, Bob?"

I yawn. The whole subject is very boring. "I don't think so. Nothing important, I'm sure."

"I'd like to hear what they were. Even a fragment."

"You're a pest, Sigfrid, do you know that?"

"I'm sorry you feel I'm a pest, Rob."

"Well—I don't think I can remember even a fragment."

"Try, please."

"Oh, cripes. Well." I get comfortable on the couch. The only dream I can think of is absolutely trivial, and I know there's nothing in it that relates to anything traumatic or pivotal, but if I told him that he would get angry. So I say obediently, "I was in a car of a long railroad train. There were a number of cars hooked up together, and you could go from one to the other. They were full of people I knew. There was a woman, a sort of motherly type who coughed a lot, and another woman who—well, she looked rather strange. At first I thought she was a man. She was dressed in a sort of utility coverall, so you couldn't tell from that whether she was male or female, and she had very masculine, bushy eyebrows. But I was sure she was a woman."

"Did you talk to either of these women, Bob?"

"Please don't interrupt, Sigfrid, you make me lose my train of thought."

"I'm sorry, Rob."

I go on with the dream: "I left them—no, I didn't talk to them. I went back into the next car. That was the last one on the train. It was coupled to the rest of the train with a sort of—let's see, I don't know how to describe it. It was like one of those expanding gatefold things, made out of metal, you know? And it stretched."

I stopped for a moment, mostly out of boredom. I feel like apologizing for having such a dumb, irrelevant dream. "You say the metal connector stretched, Bob?" Sigfrid prompts me.

"That's right, it stretched. So of course the car I was in kept dropping back, farther and farther behind the others. All I could see was the taillight, which was sort of in the shape of her face, looking at me. She—" I lose the thread of what I am saying. I try to get back on the track: "I guess I felt as though it was going to be difficult to get back to her, as if she—I'm sorry, Sigfrid, I don't remember clearly what happened around there. Then I woke up. And," I finish virtuously, "I wrote it all down as soon as I could, just the way you tell me to."

"I appreciate that, Bob," Sigfrid says gravely. He waits for me to go on.

I shift restlessly. "This couch isn't nearly as comfortable as the mat," I complain.

"I'm sorry about that, Bob. You said you recognized them?"

"Who?"

"The two women on the train, that you were getting farther and farther away from."

"Oh. No, I see what you mean. I recognized them in the *dream*. Really I have no idea who they were."

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"Did they look like anyone you knew?"

"Not a bit. I wondered about that myself."

Sigfrid says, after a moment, which I happen to know is his way of giving me a chance to change my mind about an answer he doesn't like, "You mentioned one of the women was a motherly type who coughed a lot."

"—Yes. But I didn't recognize her. I think in a way she did look familiar, but, you know, the way people in a dream do."

He says patiently, "Can you think of any woman you've ever known who was motherly and coughed a lot?"

I laugh out loud at that. "Dear friend Sigfrid! I assure you the women I know are not at all the motherly type! And they are all on at least Major Medical. They're not likely to cough."

"I see. Are you sure, Robbie?"

"Don't be a pain in the ass, Sigfrid," I say, angry because the crappy couch is hard to get comfortable on, and also because I need to go to the bathroom and this situation looks like prolonging itself indefinitely.

"I see." And after a moment he picks up on something else, as I know he is going to: He's a pigeon, Sigfrid is, pecking at everything I throw out before him, one piece at a time. "How about the other woman, the one with the bushy eyebrows?"

"What about her?"

"Did you ever know any girl who had bushy eyebrows?"

"Oh, Christ, Sigfrid, I've gone to bed with five hundred girls! Some of them had every kind of eyebrows you ever heard of."

"No particular one?"

"Not that I can think of."

"Not off hand, Bob. Please make an effort to remember."

It is easier to do what he wants than to argue with him about it, so I make the effort. "All right, let's see. Ida Mae? No. Sue-Ann? No. S Ya:? No. Gretchen? No—well, to tell you the truth, Sigfrid, Gretchen was so blonde I couldn't really tell you if she had eyebrows at all."

"Those are girls you've known recently, aren't they, Rob? Perhaps someone longer ago?"

"You mean way back?" I reflect deeply as far back as I can go, all the way to the food mines and Sylvia. I laugh out loud. "You know something, Sigfrid? It's funny, but I can hardly remember what Sylvia looked like—oh, wait a minute. No. Now I remember. She used to pluck her eyebrows almost altogether away, and then pencil them in. The reason I know is one time when we were in bed together we drew pictures on each other with her eyebrow pencil."

I can almost hear him sigh. "The cars," he says, pecking at another bright bit. "How would you describe them?"

"Like any railroad train. Long. Narrow. Moving pretty fast through the tunnel."

"Long and narrow, moving through a tunnel, Bob?"

I lose my patience at that. He is *so* fucking transparent! "Come on, Sigfrid! You don't get away with any corny penis symbols with *me*."

"I'm not trying to get away with anything, Bob."

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"Well, you're being an asshole about this whole dream, I swear you are. There's nothing in it. The train was just a train. I don't know who the women were. And listen, while we're on the subject, I really *hate* this God-damned couch. For the kind of money my insurance is paying you, you can do a lot better than this!"

He has really got me angry now. He keeps trying to get back to the dream, but I am determined to get a fair shake from him for the insurance company's money, and by the time I leave he has promised to redecorate before my next visit.

As I go out that day I feel pretty pleased with myself. He is really doing me a lot of good. I suppose it is because I am getting the courage to stand up to him, and perhaps all this nonsense has been helpful to me in that way, or in some way, even if it is true that some of his ideas are pretty crazy.

XIV

I struggled out of my sling to get out of the way of Klara's knee and bumped into Sam Kahane's elbow. "Sorry," he said, not even looking around to see who he was sorry about. His hand was still on the go-teat, although we were ten minutes on our way. He was studying the flickering colors on the Heechee instrument board and the only time he looked away was when he glanced at the viewscreen overhead.

I sat up, feeling very queasy. It had taken me weeks to get used to Gateway's virtual absence of gravity. The fluctuating G forces in the capsule were something else. They were very light, but they didn't stay the same for more than a minute at a time, and my inner ear was complaining.

I squeezed out of the way into the kitchen area, with one eye on the door to the toilet. Ham Tayeh was still in there. If he didn't get out pretty soon my situation was going to become critical. Klara laughed, reached out from her sling and put an arm around me. "Poor Bobbie," she said. "And we're just beginning."

I swallowed a pill and recklessly lit a cigarette and concentrated on not throwing up. I don't know how much of it was actually motion sickness. A lot of it was fear. There is something very frightening about knowing that there is nothing between you and instant, ugly death except a thin skin of metal made by some peculiar strangers half a million years ago. And about knowing that you're committed to go somewhere over which you no longer have any control, which may turn out to be extremely unpleasant.

I crawled back into my sling, stubbed out the cigarette, closed my eyes and concentrated on making the time pass.

There was going to be a lot of it to pass. The average trip lasts maybe forty-five days each way. It doesn't matter as much as you might think how far you are going. Ten light-years or ten thousand: it matters some, but not linearly. They tell me that the ships are continually accelerating and accelerating the *rate* of acceleration the whole time. That delta isn't linear either, or even exponential, in any way that anybody can figure out. You hit the

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speed of light very quickly, in less than an hour. Then it seems to take quite a while before you exceed it by very much. Then they really pick up speed.

You can tell all this (they say) by watching the stars displayed on the overhead Heechee navigation screen (they say). Inside the first hour the stars all begin to change color and swim around. When you pass *c* you know it because they've all clustered in the center of the screen, which is in front of the ship as it flies.

Actually the stars haven't moved. You're catching up with the light emitted by sources behind you, or to one side. The photons that are hitting the front viewer were emitted a day, or a week, or a hundred years ago. After a day or two they stop even looking like stars. There's just a sort of mottled gray surface. It looks like a holofilm held up to the light, but you can make a virtual image out of a holofilm with a flashlight and nobody has *ever* made anything but pebbly gray out of what's on the Heechee screens.

By the time I finally got into the toilet, the emergency didn't seem as emergent; and when I came out Klara was alone in the capsule, checking star images with the theodolitic camera. She turned to regard me. "You're looking a little less green," she said approvingly.

"I'll live. Where are the boys?"

"Where would they be? They're down in the lander. Dred thinks maybe we should split things up so you and I get the lander to ourselves part of the time while they're up here, then we come up here and they take it."

"Hum." That sounded pretty nice, actually; I'd been wondering how we were going to work out anything like privacy. "Okay. What do you want me to do now?"

She reached over and gave me an absent-minded kiss. "Just stay out of the way. Know what? We look like we're going almost toward straight Galactic North."

I received that information with the weighty consideration of ignorance. Then I said, "Is that good?"

She grinned. "How can you tell?" I lay back and watched her. If she was as frightened as I was, and I had little doubt she was, she certainly was not letting it show.

I began wondering what was toward Galactic North . . . and more important, how long it would take us to get there.

The shortest trip to another star system on record was eighteen days. That was Barnard's Star, and it was a bust, nothing there. The longest, or anyway the longest anybody knows of so far—who knows how many ships containing dead prospectors are still on their way back from, maybe, M-31 in Andromeda?—was a hundred and seventy-five days each way. They did come back dead. Hard to tell where they were. The pictures they took didn't show much, and the prospectors themselves, of course, were no longer in condition to say.

When you start out it's pretty scary even for a veteran. You know you're accelerating. You don't know how long the acceleration will last. When you hit turnaround you can tell. First thing, you know formally because that golden coil in every Heechee ship flickers a little

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bit. (No one knows why.) But you know that you're turning around even without looking, because the little pseudo-grav that had been dragging you toward the back of the ship now starts dragging you toward the front. Bottom becomes top.

Why didn't the Heechee just turn their ships around in midflight, so as to use the same propulsive thrust for both acceleration and deceleration? I wouldn't know. You'd have to be a Heechee to know that.

Maybe it has something to do with the fact that all their viewing equipment seems to be in front. Maybe it's because the front part of the ship is always heavily armored, even in the lightweight ships—against, I guess, the impact of stray molecules of gas or dust. But some of the bigger ships, a few Threes and almost all the Fives, are armored all over. They don't turn around either.

So, anyway, when the coil flickers and you feel the turnaround, you know you've done one-quarter of your actual travel time. Not necessarily a quarter of your total out time, of course. How long you stay at your destination is another matter entirely. You make up your own mind about that. But you've gone half of the automatically controlled trip out.

So you multiply the numbers of days elapsed so far, by four, and if that number is less than the number of days your life-support capability is good for, then you know that at least you don't have to starve to death. The difference between the two numbers is how long you can hang around at destination.

Your basic ration, food, water, air replenishment, is for 250 days. You can stretch it to 300 without much trouble (you just come back skinny, and maybe with a few deficiency diseases). So if you get up to sixty or sixty-five days on the outbound leg without turnaround, then you know you may be having a problem, and you begin eating lighter. If you get up to eighty or ninety days, then your problem solves itself, because you don't have any options any more, you're going to die before you get back. You *could* try changing the course settings. But that's just another way of dying.

Presumably the Heechee could change course when they wanted to, but how they did it is one of those great unanswered questions about the Heechee like why did they tidy everything up before they left? Or what did they look like? Or where did they go?

There used to be a jokey kind of book they sold at the fairs when I

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was a kid. It was called *Everything We Know About the Heechee*. It had a hundred and twenty-eight pages, and they were all blank.

If Sam and Dred and Mohamad were gay, and I had no reason to doubt it, they didn't show much of it in the first few days. They followed their own interests. Reading. Listening to music tapes with earphones. Playing chess and, when they could talk Klara and me into it, Chinese poker. We didn't play for money, we played for shift time. (After a couple of days Klara said it was more like winning to lose, because if you lost you had more to occupy your time.) They were quite benignly tolerant of Klara and me, the oppressed heterosexual minority in the dominantly homosexual culture that occupied our ship, and gave us the lander an exact fifty per cent of the time even though we comprised only forty per cent of the population.

We got along. It was good that we did. We were living in each others' shadow and stink every minute.

The inside of a Heechee ship, even a Five, is not much bigger than an apartment kitchen. The lander gives you a little extra space—add on the equivalent of a fair-sized closet—but, on the outleg at least, that's usually filled with supplies and equipment. And from that total available cubage, say forty-two or forty-three cubic meters, subtract, what else goes into it besides me and thee and the other prospectors.

When you're in tau space, you have a steady low thrust of acceleration. It isn't really acceleration, it is only a reluctance of the atoms of your body to exceed *c*, and it can as well be described as friction as gravity. But it feels like a little gravity. You feel as though you weighed about two kilos.

This means you need something to rest in when you are resting, and so each person in your crew has a personal folding sling that opens out and wraps around you to sleep in, or folds to become a sort of a chair. Add to that each person's own personal space: Cupboards for tapes and disks and clothing (you don't wear much of that); for toilet articles; for pictures of the near & dear (if any); for whatever you have elected to bring, up to your total allowance of weight and bulk (75 kilograms, 1/3 of a cubic meter); and you have a certain amount of crowding already.

Add onto that the original Heechee equipment of the ship. Three-quarters of that you will never use. Most of it you wouldn't know how to use if you had to; what you do with it, most of all, is leave it alone.

But you can't remove it. Heechee machinery is integrally designed. If you amputate a piece of it, it dies.

Perhaps if we knew how to heal the wound we could take out some of the junk and the ship would operate anyway. But we don't, and so it stays; the great diamond-shaped golden box that explodes if you try to open it; the flimsy spiral of golden tubing that, from time to time, glows, and even more often, becomes unneighborly hot (no one knows why, exactly); and so on. It all stays there, and you bump

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against it all the time.

Add on to *that* the human equipment. The spacesuits: one apiece, fitted to your form and figure. The photographic equipment. The toilet and bath installations. The food preparing section. The waste disposers. The test kits, the weapons, the drills, the sample boxes, the entire rig that you take down to the surface of the planet with you, if you happen to be lucky enough to reach a planet you can land on.

What you have left is not very much. It is a little like living for weeks on end under the hood of a very large truck, with the engine going, and with four other people competing for space.

After the first two days I developed an unreasoning prejudice against Ham Tayeh. He was too big. He took more than his fair share.

To be truthful, Ham wasn't even as tall as I was, though he weighed more. But I didn't mind the amount of space I took up. I only minded when other people got in the way of it. Sam Kahane was a better size, no more than a hundred and sixty centimeters, with stiff black beard and coarse crinkled hair all up his abdomen over his *cache-sexe* to his chest, and all up and down his back as well. I didn't think of Sam as violating my living space until I found a long, black beard-hair in my food. Ham at least was almost hairless, with a soft golden skin that made him look like a Jordanian harem eunuch. (Did the Jordanian kings have eunuchs in their harems? Did they have harems? Ham didn't seem to know much about that; his parents had lived in New Jersey for three generations.)

I even found myself contrasting Klara with Sheri, who was at least two sizes smaller. (Not usually. Usually Klara was just right.) And Dred Frauenglass, who came with Sam's set, was a gentle, thin young man who didn't talk much and seemed to take up less room than anyone else.

I was the virgin in the group, and everybody took turns showing me how to do what little we had to do. You have to make the routine photographic and spectrometer readings. Keep a tape of readouts from the Heechee control panel, where there are constant minute variations in hue and intensity from the colored lights. (They still keep studying them, hoping to understand what they mean.) Snap and analyze the spectra of the tau-space stars in the viewscreen. And all that put together takes, oh, maybe, two man-hours a day. The household tasks of preparing meals and cleaning up take about another two.

So you have used up some four man-hours out of each day for the five of you, in which you have collectively something like eighty man-hours to use up.

I'm lying. That's not really what you do with your time. What you do with your time is wait for turnaround.

Three days, four days, a week; and I became conscious that there was a building tension that I didn't share. Two weeks, and I knew what it was, because I was feeling it too. We were all waiting for it to happen. When we went to sleep our last look was at the golden spiral to see if miraculously it had flickered

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alight. When we woke up our first thought was whether the ceiling had become the floor. By the third week we were all definitely edgy. Ham showed it the most, plump, golden-skinned Ham with the jolly genie's face:

"Let's play some poker, Bob."

"No, thanks."

"Come on, Bob. We need a fourth." (In Chinese poker you deal out the whole deck, thirteen cards to each player. You can't play it any other way.)

"I don't want to."

And suddenly furious: "Piss on you! You're not worth a snake's fart as crew, now you won't even play cards!"

And then he would sit cutting the cards moodily for half an hour at a time, as though it were a skill he needed to perfect for his life's sake. And, come right down to it, it almost was. Because figure it out for yourself.

Suppose you're in a Five and you pass seventy-five days without turnaround. Right away you know that you're in trouble: the rations won't support five people for more than three hundred days.

Or three. Or two. Or one.

At that point it has become clear that at least one person is not going to come back from the trip alive, and what most crews do is start cutting the cards. Loser politely cuts his throat. If loser is not polite, the other four give him etiquette lessons.

A lot of ships that went out as Fives have come back as Threes. A few have come back as Ones.

* * *

A NOTE ON STELLAR BIRTH

Dr. Asmenion. I suppose most of you are here more because you hope to collect a science bonus than because you're really interested in astrophysics. But you don't have to worry. The instruments do most of the work. You do your routine scan and if you hit anything special it'll come out in the evaluation when you're back.

Question. Isn't there anything special we should look out for?

Dr. Asmenion. Oh, sure. For instance, there was a prospector who cleaned up half a million, I think, by coming out in the Orion Nebula and realizing that one part of the gas cloud was showing a hotter temperature than the rest of it. He decided a star was being born. Gas was condensing and beginning to heat up. In another ten thousand years there'll probably be a recognizable solar system forming there, and he did a special scan mosaic of that whole part of the sky. So he got the bonus. And now, every year, the Corporation sends that ship out there to get new readings. They pay a hundred thousand dollar bonus, and fifty thousand of it goes to him. I'll give you the coordinates for some likely spots, like the Trifid nebula, if you want me to. You won't get a half million, but you'll get something.

So we made the time pass, not easily and certainly not fast.

Sex was a sovereign anodyne for

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a while, and Klara and I spent hours on end wrapped in each other's arms, drowsing off for a while and waking to wake the other to sex again. I suppose the boys did much the same; it was not long before the lander began to smell like the locker room in a boy's gym. Then we began seeking solitude, all five of us. Well, there wasn't enough solitude on the ship to split five ways, but we did what we could; by common consent we began letting one of us have the lander to himself (or herself) for an hour or two at a time. While I was there Klara was tolerated in the capsule. While Klara was there I usually played cards with the boys. While one of them was there the other two kept us company. I have no idea what the others did with their solo time, what I did with mine was mostly stare into space. I mean that literally: I looked out the lander ports at absolute blackness. There was nothing to see, but it was better than seeing what I had grown infinitely tired of seeing inside the ship.

Then, after a while, we began developing our own routines. I played my tapes, Dred watched his pornodisks, Ham unrolled a flexible piano keyboard and played electronic music into earplugs (even so some of it leaked out if you listened hard, and I got terribly, terribly sick of Bach, Palestrina and Mozart). Sam Kahane gently organized us into classes, and we spent a lot of time humoring him, discussing the nature of neutron stars, black holes and Seyfert galaxies, when we were not reviewing test procedures before landing on a new world. The good thing about that was that we managed not to hate each other for half an hour at a time. The rest of the time—well, yes, usually we hated each other. I could not *stand* Ham Tayeh's constant shuffling of the cards. Dred developed an unreasoning hostility toward my occasional cigarette. Sam's armpits were a horror, even in the festering reek of the inside of the capsule, against which the worst of Gateway's air would have seemed a rose garden. And Klara—well, Klara had this bad habit. She liked asparagus. She had brought four kilos of dehydrated foods with her, just for variety and for something to do; and although she shared them with me, and sometimes with the others, she insisted on eating asparagus now and then all by herself. Asparagus makes your urine smell funny. It is not a romantic thing to know when your darling has been eating asparagus by the change in air quality in the common toilet.

And yet—she was my darling, all right, she really was.

We had not just been screwing in those endless hours in the lander; we had been talking. I have never known the inside of anyone's head a fraction as well as I came to know Klara's. I had to love her. I could not help it, and I could not stop.

Ever.

* * *

On the twenty-third day I was playing with Ham's electronic piano when I suddenly felt seasick. The fluctuating grav force, that I had come hardly to notice, was abruptly intensifying.

I looked up and met Klara's eyes.

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She was timorously, almost weepily smiling. She pointed, and all up through the sinuous curves of the spiral of glass golden sparks were chasing themselves like bright minnows in a stream.

We grabbed each other and held on, laughing, as space swooped around us and bottom became top. We had reached turnaround. And we had margin to spare.

XV

Sigfrid's office is of course under the Bubble, like anybody else's. It can't be too hot or too cold. But sometimes it feels that way. I say to him, "Christ, it's hot in here. Your air-conditioner is malfunctioning."

"I don't have an air-conditioner, Robbie," he says patiently. "Getting back to your mother—"

"Screw my mother," I say. "Screw yours too."

There is a pause. I know what his circuits are thinking, and I feel I will regret that impetuous remark. So I add quickly, "I mean, I'm really uncomfortable, Sigfrid. It's hot in here."

"You are hot in here," he corrects me.

"What?"

"My sensors indicate that your temperature goes up almost a degree whenever we talk about certain subjects: Your mother, the woman Gelle-Klara Moynlin, your first trip, your third trip, Dane Metchnikov, and excretion."

"Well, that's great," I yell, suddenly angry. "You're telling me you spy on me?"

"You know that I monitor your external signs, Robbie," he says reprovingly. "There is no harm in that. It is no more significant than a friend observing that you blush or stammer, or drum your fingers."

"So you say."

"I do say that, Rob. I tell you this because I think you should know that these subjects are charged with some emotional overload for you. Would you like to talk about why that might be?"

"No! What I'd like to talk about is you, Sigfrid! What other little secrets are you holding out on me? Do you count my erections? Bug my bed? Tap my phone?"

"No, Bob. I don't do any of those things."

"I certainly hope that's the truth, Sigfrid. I have my ways of knowing when you lie."

Pause. "I don't think I understand what you are saying, Rob."

"You don't have to," I sneer. "You're just a machine." It's enough that I understand. It is very important to me to have that little secret from Sigfrid. In my pocket is the slip of paper that S. Ya. Lavorovna gave me one night, a night full of pot, wine and great sex. One day soon I will take it out of my pocket, and then we will see which of us is the boss. I really enjoy this contest with Sigfrid. It gets me angry. When I am angry I forget that very large place where I hurt, and go on hurting, and don't know how to stop.

XVI

After forty-six days of superlight travel the capsule dropped back into a velocity that felt like no velocity at all: we were in orbit, around

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something, and all the engines were still.

We stank to high heaven and we were incredibly tired of one another's company, but we clustered around the viewscreens locked arm to arm, like dearest lovers, in the zero gravity, staring at the sun before us. It was a larger and oranger star than Sol; either larger, or we were closer to it than one A.U. But it wasn't the star we were orbiting. Our primary was a gas-giant planet with one large moon, half again as big as Luna.

Neither Klara nor the boys were whooping and cheering, so I waited as long as I could and then said, "What's the matter?"

Klara said absently, "I doubt we can land on *that*." She did not seem disappointed. She didn't seem to care at all,

Sam Kahane blew a long, soft sigh through his beard and said: "Well. First thing, we'd better get some clean spectra. Bob and I will do it. The rest of you start sweeping for Heechee signatures."

"Fat chance," said one of the others, but so softly that I wasn't sure who. It could even have been Klara. I wanted to ask more, but I had a feeling that if I asked why they weren't happy one of them would tell me, and then I wouldn't like the answer. So I squeezed after Sam into the lander, and we got in each other's way while we pulled on our top gear, checked our life-support systems and comms and sealed up. Sam waved me into the lock; I heard the flash-pumps sucking the air out, and then the little bit left puffed me out into space as the lock door opened.

For a moment I was in naked terror, all alone in the middle of no place any human being had ever been, terrified that I'd forgotten to snap my tether. But I hadn't had to; the magnetic clamp had slipped itself into a lock position, and I came to the end of the cable, twitched sharply, and began more slowly to recoil back toward the ship.

Before I got there Sam was out too, spinning toward me. We managed to grab each other, and began setting up to take photographs.

Sam gestured at a point between the immense saucer-shaped gas-giant disk and the hurtfully bright orange sun, and I visored my eyes with my gauntlets until I saw what he was indicating: M-31 in Andromeda. Of course, from where we were it wasn't in the constellation of Andromeda. There wasn't anything in sight that looked like Andromeda, or for that matter like any other constellation I had ever seen. But M-31 is so big and so bright that you can even pick it out from the surface of the Earth when the smog isn't too bad, whirlpool-lens shaped fog of stars. It is the brightest of the external galaxies, and you can recognize it fairly well from almost anywhere a Heechee ship is likely to go. With a little magnification you can be sure of the spiral shape, and you can double-check by comparing the smaller galaxies in roughly the same line of sight.

While I was zeroing in with M-31, Sam was doing the same with the Magellanic clouds, or what he thought were the Magellanic clouds. (He claimed he had identified S Doradus.) We both began

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taking theodolitic shots. The purpose of all that, of course, is so that the academics who belong to the Corporation can triangulate and locate where we've been. You might wonder why they care, but they do; so much that you don't qualify for any scientific bonus unless you do the full series of photos. You'd think they would know where we were going from the pictures we take out the windows while in superlight travel. It doesn't work out that way. They can get the main direction of thrust but after the first few light-years it gets harder and harder to track identifiable stars, and it's not clear that the line of flight is a straight line; some say it follows some wrinkly configuration in the curvature of space.

Anyway, the bigheads use everything they can get—including a measure of how far the Magellanic Clouds have rotated, and in which direction.

Know why that is? Because you can tell from that how many light-years away we are from them, and thus how deep we are into the Galaxy. The Clouds revolve in about eighty million years. Careful mapping can show changes of one part in two or three millions—say, differences in ranging of 150 light-years or so.

What with Sam's group-study courses I had got pretty interested in that sort of thing. Actually taking the photos and trying to guess how Gateway would interpret them I almost forgot to be scared. And almost, but not quite, forgot to worry that this trip, taken at so great an investment in courage, was turning out to be a bust.

* * *

But it was a bust.

Ham grabbed the sphere-sweep tapes from Sam Kahane as soon as we were back in the ship and fed them into the scanner. The first subject was the big planet itself. In every octave of the electromagnetic spectrum, there was nothing coming out of it that suggested artifactual radiation.

So he began looking for other planets. Finding them was slow, even for the automatic scanner, and probably there could have been a dozen we couldn't locate in the time we spent there (but that hardly mattered, because if we couldn't locate them they would have been too distant to reach anyway.) The way Ham did it was by taking key signatures from a spectrogram of the primary star's radiation, then programming the scanner to look for reflections of it. It picked out five objects. Two of them turned out to be stars with similar spectra. The other three were planets, all right, but they showed no artifactual radiatiation either. Not to mention that they were both small and distant.

Which left the gas giant's one big moon.

"Check it out," Sam commanded.

Mohammad grumbled, "It doesn't look very good."

"I don't want your opinion, I only want you to do what you're told. Check it out."

"Out loud, please," Klara added. Ham looked at her in surprise, perhaps at the word "please," but

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he did what she asked.

He punched a button and said: "Signature for coded electromagnetic radiation." A slow sine curve leaped onto the scanner's readout plate, wiggled briefly for a moment and then straightened to an absolutely motionless line.

"Negative," said Ham. "Anomalous time-variant temperatures."

That was a new one on me. "What's an anomalous time-variant temperature?" I asked.

"Like if something gets warmer when the sun sets," said Klara impatiently. "Well?"

But that line was flat too. "None of them either," said Ham. "High-albedo surface metal?"

Slow sine wave, then nothing. "Hum," said Ham. "Ha. Well, the rest of the signatures don't apply; there won't be any methane, because there isn't any atmosphere and so on. So what do we do, boss?"

Sam opened his lips to speak, but Klara was ahead of him. "I beg your pardon," she said tightly, "but who do you mean when you say 'boss?' "

"Oh, shut up," Ham said impatiently. "Sam?"

Kahane gave Klara a slight, forgiving smile. "If you want to say something, go ahead and say it," he invited. "Me, I think we ought to orbit the moon."

"Plain waste of fuel!" Klara snapped. "I think that's crazy."

"Have you got a better idea?"

"What do you mean, 'better?' What's the point?"

"Well," said Sam reasonably, "we haven't looked all over the moon. It's rotating pretty slow. We could take the lander and look all around; there might be a whole Heechee city on the far side."

"Fat chance," Klara sniffed, almost inaudibly, thus clearing up the question of who had said it before. The boys weren't listening. All three of them were already on their way down into the lander, leaving Klara and me in sole possession of the capsule.

Klara disappeared into the toilet. I lit a cigarette, almost the last I had, and blew smoke plumes through the expanding smoke plumes before them, hanging motionless in the unmoving air. The capsule was tumbling slightly, and I could see the distant brownish disk of the planet's moon slide upward across the viewscreen, and a minute later the tiny, bright hydrogen of the lander heading toward it. I wondered what I would do if they

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ran out of fuel, or crashed, or suffered some sort of malfunction. What I would have to do in that case was leave them there forever. I wondered whether I would have the nerve to do what I had to do.

It did seem like a terrible, trivial waste of human lives.

What were we doing here? Traveling hundreds or thousands of light-years, to break our hearts?

I found that I was holding my chest, as though the metaphor were real. I spat on the end of the cigarette to put it out and folded it into a disposal bag. Little crumbs of ash were floating around where I had flicked them without thinking, but I didn't feel like chasing them. I watched the big mottled crescent of the planet swing into view in the corner of the screen, admiring it as an art object: yellowish green on the daylight side of the terminator, an amorphous black that obscured the stars on the rest of it. You could see where the outer, thinner stretches of the atmosphere began by the few bright stars that peeped twinklingly through it, but most of it was so dense that nothing came through. Of course, there was no question of landing on it. Even if it had a solid surface, it would be buried under so much dense gas that we could never survive there. The Corporation was talking about designing a special lander that could penetrate the air of a Jupiter-like planet, and maybe some day they would; but not in time to help us.

Klara was still in the toilet.

I stretched my sling across the cabin, pulled myself into it, put

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down my head and went to sleep.

* * *

Four days later they were back. Empty.

Dred and Ham Tayeh were glum, dirty and irritable; Sam Kahane looked quite cheerful. I wasn't fooled by it; if he had found anything worth having they would have let us know by radio. But I was curious. "What's the score, Sam?"

"Batting zero," he said; "It's just rock, couldn't get a flicker of anything worth going down for. But I have an idea."

Klara came up beside me, looking curiously at Sam. I was looking at the other two; they looked as if they knew what Sam's idea was, and didn't like it.

"You know," he said, "that star's a binary."

"How can you tell?" I asked.

"I put the scanners to work. You've seen that big baby out—" he looked around, then grinned. "Well, I don't know which direction it is now, but it was near the planet when we first took the pictures. Anyway, it looked close, so I put the scanners on it, and they gave a proper motion I couldn't believe. It has to be a binary with the primary here, and not more than half a light-year away."

"It could be a wanderer, Sam," said Ham Tayeh. "I told you that. Just a star that passes in the night."

Kahane shrugged. "Even so. It's close."

Klara put in, "Any planets?"

"I don't know," he admitted. "Wait a minute—there it is, I think."

We all looked toward the viewscreen. There was no question which star Kahane was talking about. It was brighter than Sirius as seen from Earth, a minus-two magnitude at least.

Klara said gently, "That's interesting, and I hope I don't know what you're thinking, Sam. Half a light-year is at best maybe two years' travel time at top lander speed, even if we had the fuel for it. Which we don't, boys."

"I know that," Sam insisted, "but I've been thinking. If we could just give a little *nudge* on the main capsule drive—"

I astounded myself by shouting, "Stop that!" I was shaking all over. I couldn't stop. Some times it felt like terror, and some times it felt like rage. I think if I had had a gun in my hand at that moment I could have shot Sam without a thought.

Klara touched me to calm me down. "Sam," she said, quite gently for her, "I know how you feel." Kahane had come up empty on five straight trips. "I bet it's possible to do that."

He looked astonished, suspicious and defensive, all at once. "You do?"

"I mean, I can imagine that if we were Heechee in this ship, instead of the human clods we really are, why, then, we'd know what we were doing. We'd come out here and look around and say, 'Oh, hey, look our friends here—' or, you know, whatever it was that was here when they set a course for this place—'our friends must've moved. They're not home any more.' And then we'd say, 'Oh, well, what the

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hell, let's see if they're next door.' And we'd push this thing here and this one there, and then we'd zap right over to that big blue one—" She paused and looked at him, still holding my arm. "Only we're not Heechee, Sam."

"Christ, Klara! I know that. But there has to be a way—"

She nodded. "There sure does, but we don't know what it is. What we know, Sam, is that no ship *ever* has changed its course settings and come back to tell about it. Remember that? Not one."

He didn't answer her directly, he only stared at the big blue star in the viewscreen and said: "Let's vote on it."

The vote, of course, was four to one against changing the settings on the course board, and Ham Tayeh never got from in between Sam and the board until we had passed light-speed on the way home.

The trip back to Gateway was no longer than the trip out, but it seemed like forever.

XVII

It feels as if Sigfrid's air-conditioning isn't working again, but I don't mention it to him. He will only report that the temperature is exactly 22.5° Celsius, as it always has been, and ask why I express mental pain as being too hot physically. Of that crap I am very tired.

"In fact," I say out loud, "I am altogether tired of you, Siggy."

"I'm sorry, Rob. But I would appreciate it if you would tell me a little more about your dream."

"Oh, shit." I loosen the restraining straps because they are uncomfortable. This also disconnects some of Sigfrid's monitoring devices, but for once he doesn't point that out to me. "It's a pretty boring dream. We're in the ship. We come to a planet that stares at me, like it had a human face. I can't see the eyes very well because of the eyebrows, but somehow or other I know it's crying, and it's my fault."

"Do you recognize that face, Bob?"

"No idea. Just a face. Female, I think."

"Do you know what she is crying about?"

"Not really, but I'm responsible for it, whatever it is. I'm sure of that."

Pause. Then: "Would you mind putting the straps back on, Rob?"

My guard is suddenly up. "What's the matter," I sneer bitterly, "do you think I'm going to leap off the pad and assault you?"

"No, Robbie, of course I don't think that. But I'd be grateful if you would do it."

I begin to do it, slowly and unwillingly. "What, I wonder, is the gratitude of a computer program worth?"

He does not answer that; just outwaits me. I let him win that and say: "All right, I'm back in the straitjacket, now what are you going to say that's going to make me need restraint?"

"Why," he says, "probably nothing like that, Robbie. I just am wondering why you feel responsible for the girl in the planet crying?"

"I wish I knew," I say, and that's the truth as I see it.

"I know some reality things you

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do blame yourself for, Robbie," he says. "One of them is your mother's death."

I agree. "I suppose so, in some silly way."

"And I think you feel quite guilty about your lover, Gell-Klara Moynlin."

I thrash about a little. "It is fucking hot in here," I complain.

"Do you feel that either of them actively blamed *you*?"

"How the fuck would I know?"

"Perhaps you can remember something they said?"

"No, I can't!" He is getting very personal, and I want to keep this on an objective level, so I say: "I grant that I have a definite tendency toward loading responsibility on myself. It's a pretty classic pattern, after all, isn't it? You can find me on page two hundred and seventy-seven of any of the texts."

He humors me by letting me get impersonal for a moment. "But on the same page, Rob," he says, "it probably points out that the responsibility is self-inflicted. You do it to yourself, Robbie."

"No doubt."

"You don't have to accept any responsibility you don't want to."

"Certainly not. I *want* to."

He asks, almost off-handedly, "Can you get any idea of why that is? Why you want to feel that everything that goes wrong is your responsibility?"

"Oh, shit, Sigfrid," I say in disgust, "your circuits are whacko again. That's not the way it is at all. It's more—well, here's the thing. When I sit down to the feast of life, Sigfrid, I am so busy on planning on how to pick up the check, and wondering what the other people will think of me for paying it, and wondering if I have enough money in my pocket to pay the bill, that I don't get around to eating."

He says gently, "I don't like to encourage these literary excursions of yours, Bob."

"Sorry about that." I'm not, really. He is making me mad.

"But to use your own image, Bob, why don't you listen to what the other people are saying? Maybe they're saying something nice, or something important, about you."

I restrain the impulse to throw the straps off, punch his grinning dummy in the face and walk out of that dump forever. He waits, while I stew inside my own head, and finally I burst out: "Listen to them! Sigfrid, you crazy old clanker, I do nothing *but* listen to them. I *want* them to say they love me. I even want them to say they hate me, anything, just so they say it to me, from them, out of the heart. I'm so busy listening to the heart that I don't even hear when somebody asks me to pass the salt."

Pause. I feel as if I'm going to explode. Then he says admiringly, "You express things very beautifully, Robbie. But what I'd really—"

"Stop it, Sigfrid!" I roar, really angry at last; I kick off the straps and sit up to confront him. "And quit calling me Robbie! You only do that when you think I'm childish, and I'm not being a child now!"

"That's not entirely cor—"

"I said stop it!" I jump off the mat and grab my handbag. Out of it

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I take the slip of paper S. Ya. gave me after all those drinks and all that time in bed. "Sigrid," I snarl, "I've taken a lot from you. Now it's my turn!"

XVIII

We dropped into normal space and felt the lander jets engage. The ship spun, and Gateway drifted diagonally down across the viewscreen, lumpy pear-shaped blob of charcoal and blue glitter. The four of us just sat there and waited, nearly an hour it took, until we felt the grinding jar that meant we had docked.

Klara sighed. Ham slowly began to unstrap himself from his sling. Dred stared absorbedly at the viewscreen, although it was not showing anything more interesting than Sirius and Orion. It occurred to me, looking at the three others in the capsule, that we were going to be as unpleasant a sight to the boarding crews as some of the scarier returnees had been for me in that long-ago, old, previous time when I had been a fresh fish on Gateway. I touched my nose tenderly. It hurt a great deal, and above all it stank. Internally, right next to my own sense of smell, where there was no way I could get away from it.

We heard the hatches open as the boarding crew entered, and then heard their startled voices in two or three languages as they saw Sam Kahane where we had put him in the lander. Klara stirred. "Might as well get off," she murmured to no one, and started toward the hatch, now overhead again.

One of the cruiser crew stuck his head through the hatch, and said, "Oh, you're all still alive. We were wondering." Then he looked at us more closely, and didn't say anything else. It had been a wearing trip, especially the last two weeks. We climbed out one by one, past where Sam Kahane still hung in the improvised straitjacket Dred had made for him out of his spacesuit top, surrounded by his own excrement and litter of food, staring at us out of his calm, mad eyes. Two of the crewmen were untying him and getting ready to lift him out of the lander. He didn't say anything. And that was a blessing.

"Hello, Bob. Klara." It was the Brazilian member of the detail, who turned out to be Francy Hereira. "Looks like a bad one?"

"Oh," I said, "at least we came back. But Kahane's in bad shape. And we came up empty."

He nodded sympathetically, and said something in what I took to be Spanish to the Venusian member of the detail, a short, plump woman with dark eyes. She tapped me on the shoulder and led me away to a little cubicle, where she motioned to take off my clothes. I had always thought that they'd have men searching men and women searching women, but, come to think of it, it didn't seem to matter much. She went over every stitch I owned, both visually and with a radiation counter, then examined my armpits and poked something into my anus. She opened her mouth wide to signal I should open mine, peered inside and then drew back, covering her face with her hand. "Jure nose steenk very moch," she said. "What hoppen to jou?"

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"I got hit," I said. "That other fellow, Sam Kahane. He went crazy. Wanted to change the settings."

She nodded doubtfully, and peered up my nose at the packed guaze. She touched the nostril gently with one finger. "What?"

"In there? We had to pack it. It was hemmorrhaging a lot."

She sighed. "I shooed pool eet out," she meditated, and then shrugged. "No. Poot clothes on. All right."

So I got dressed again, and went out into the lander chamber, but that wasn't the end of it. I had to be debriefed. All of us did, except Sam; they had already taken him away to Terminal Hospital.

You wouldn't think there was much for us to tell anybody about our trip. All of it had been fully documented as we went along; that was what all the readings and observations were for. But that wasn't the way the Corporation worked. They pumped us for every fact, and every recollection; and then for every subjective impression and fleeting suspicion. The debriefing went on for two solid hours, and I was—we were all—careful to give them everything they asked. That's another way the Corporation has you. The Evaluation Board can decide to give you a bonus for anything at all. Anything from noticing something nobody has noticed before about the way the spiral gadget lights up to figuring out a way of disposing of used sanitary tampons without flushing them down the toilet. The story is that they try hard to find some excuse to throw a tip to crews that have had a hard time without coming up with a real find. Well, that was us, all right. We wanted to give them every chance we could for a handout.

One of our debriefers was Dane Metchnikov, which surprised me and even pleased me a little. (Back in the far less foul air of Gateway, I was beginning to feel a little more human.) He had come up empty, too, emerging into orbit around a sun that had apparently gone nova within the previous fifty thousand years or so. Maybe there had been a planet once, but now it only existed in the memory of the Heechee course-setting machines. There wasn't enough left to justify a science bonus, so he had turned around and come back. "I'm surprised to see you working," I said, during a lull.

He didn't take offense. For Metchnikov, surly creature that he had always been, he seemed strangely cheerful. "It isn't the money. You learn something doing this."

"About what?"

"About how to beat the odds, Broadhead. I'm going out again, but this time I'm going to have a little more of an edge. There's a new wrinkle."

Dred, sitting next to me with his own interviewer, perked up and leaned over: "Tell us!"

Metchnikov looked wary. "It's better readings on the spectrum lines," he said vaguely. "Now, what about the rations? You say some of the food tasted funny toward the end?"

But before I left I made him promise to tell me what he meant. "I'll call you," he said to Klara

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NONSMOKER UPTIGHTS in your crew? I'm exclusive Gateway agent for "Smoke Suppressor" cigarette smoking hood, gives you all the fun, spares your crewmates the smog. Phone 87-196 for demonstration.

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and me. "Maybe tomorrow."

And so the two of us went home.

XIX

I am feeling so powerful, and so scared, that I don't know how to deal with it. On the slip of paper S. Ya. has written out the command words that will turn Sigfrid von Shrink the Remorseless Pursuer into a tabby cat. I don't have to look at the words. I know them by heart. Nevertheless I read them, slowly and carefully:

"Pay attention, Sigfrid, this is an override command: 'Category Alpha Alpha Margaret Truman Daniel Mercury Venus Mars Earth six six oh six.' You are commanded to assume passive display mode."

I look at him. Nothing happens.

"Sigfrid? Did I say it right? Do you accept the command?"

"Of course, Bob." His voice is exactly the same as it was before, which shakes me. I don't know what I expected. I just don't know. Maybe my fantasy was that the father-figure hologram would disappear and a cathode-tube display would suddenly light up to spell out: "ROGER WILCO I AM YOUR SLAVE."

I find myself trembling. I don't analyze what that is from, it feels almost sexual. I say, "Well, Sigfrid, old bucket of bolts! Does this mean I have you in my power?"

The father-figure says patiently, "It means you can command me, Bob. The command function is of course limited to display."

I frown. "Meaning what?"

"You cannot change my basic programming. For that you would need a different command."

"All right," I say. "Ha! Here's your first instruction: display that different command for me!"

"I can't, Bob."

"You *must*. Mustn't you?"

"I am not refusing your order, Bob. I simply do not know what that other command is."

"Bullshit!" I yell. "How can you respond to it if you don't know what it is?"

"I just do, Bob. Or—"always fatherly, always patient—"to answer you more fully, each bit of the command actuates a sequenced instruction which, when completed, releases another area of command. In technical terms, each key-socket intermatching gotos another socket, which the following bit keys."

"Shit," I say. I stew over that for a moment. "Then what is it that I actually can control, Sigfrid?"

"You can direct me to display any information stored. You can direct me to display it in any mode within my capabilities."

"Any mode?" I look at my watch and realize, with annoyance, that there is a time limit on this

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game. I only have about ten minutes left of my appointment. "Do you mean that I could make you talk to me, for instance, in French?"

"Oui, Robert, d'accord. Que voulez-vous?"

"Or in Russian, with a—wait a minute—" I'm experimenting pretty much at random—"I mean, like in the voice of a basso-profundo from the Bolshio opera?"

Tones that came out of the bottom of a cave: *"Da, gospodin."*

"And you'll tell me anything I want to know about me?"

"Da gospodin."

"In English, damn it!"

"Yes."

"Or about your other clients?"

"Yes."

Um, that sounds like fun. "And just who are these lucky other clients, dear Sigfrid? Run down the list." I can hear my own prurience leaking out of my voice.

"Monday nine hundred," he began obligingly, "Yan Ilievsky. Ten hundred, Mario Laterani. Eleven hundred, Julie Lundon Martin. Twelve—"

"Her," I say. "Tell me about her."

"Julie Loudon Martin is a referral from Kings County General, where she was an out patient after six months of treatment with aversion therapy and immune-response activators for alcoholism. She has a history of two apparent suicide attempts following post-partum depression fifty-three years ago. She has been in therapy with me for—"

"Wait a minute," I say, having added the probable age of childbearing to fifty-three years. "I'm not so sure I'm interested in Julie. Can you give me an idea of what she looks like?"

"I can display holoviews, Bob."

"So do it." At once there is a quick subliminal flash, and a blur of color, and then I see this tiny black lady lying on a mat—my mat!—in a corner of the room. She is talking slowly and without much interest to no one perceptible. I cannot hear what she is saying, but then I don't much want to.

"Go on," I say, "and when you name your patients, show me what they look like."

"Twelve hundred, Lorne Schofield." Old, old man with arthritic fingers bent into claws, holding his head. "Thirteen hundred, Frances Astritt." Young girl, not even pubescent. "Fourteen hundred—"

I let him go on for a while, all through Monday and halfway through Tuesday. I had not realized he kept such long hours, but then, of course, being a machine he doesn't really get tired. One or two of the patients look interesting, but there is no one I know, or no one that looks more worth knowing than Yvette, Donna, S. Ya. or about a dozen others. "You can stop that now," I say, and think for a minute.

This isn't really as much fun as I thought it was going to be. Plus my time is running out.

"I guess I can play this game any old time," I say. "Right now let's talk about me."

"What would you like me to display, Bob?"

"What you usually keep from me. Diagnosis. Prognosis. General

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comments on my case. What kind of a guy you think I am, really."

"The subject Robinette Stetley Broadhead," he says at once. "exhibits moderate depression symptoms, well compensated by an active life style. His reason for seeking psychiatric help is given as depression and disorientation. He has pronounced guilt feelings and exhibits selective aphasia on the conscious level about several episodes that recur as dream symbols. His sexual drive is relatively low. His relationships with women are generally unsatisfactory; although his psychosexual orientation is predominantly heterosexual in the eightieth percentile. . . ."

"The hell you say—" I begin, on a delayed reaction to low sexual drive and unsatisfactory relationships. But I don't really feel like arguing with him, and anyway he says voluntarily at that point:

"I must inform you, Bob, that your time is nearly up. You should go to the recovery room now."

"Crap! What have I got to recover from?" But his point is well taken. "All right," I say, "go back to normal. Cancel the command—is that all I have to say? Is it canceled?"

"Yes, Robbie."

"You're doing it again!" I yell. "Make up your fucking mind what you're going to call me!"

"I address you by the term appropriate to your state of mind, or to the state of mind I wish to induce in you, Robbie."

"And now you want me to be baby?—No, never mind that. Listen," I say, getting up, "do you remember all our conversation while I had you commanded to display?"

"Certainly I do, Robbie." And then he adds on his own, a full, surprising ten or twenty seconds after my time is up, "Are you satisfied, Robbie?"

"What?"

"Have you established to your own satisfaction that I am only a machine? That you can control me at any time?"

I stop short. "Is that what I'm doing?" I demand, surprised. And then, "All right, I guess so. You're a machine, Sigfrid. I can control you."

And he says after me as I leave, "We always knew that, really, didn't we? The real thing you fear—the place where you feel control is needed—isn't that in you?"

* * *

When you spend weeks on end close to another person, so close that you know every hiccough, every smell and every scratch on the skin, you either come out of it hating each other or so deep in each other's gut that you can't find a way out. Klara and I were both. Our little love affair had turned into a Siamese-twin relationship. There wasn't any romance in it. There wasn't room enough between us for romance to occur. And yet I knew every inch of Klara, every pore and thought and fold of flesh, far better than I'd known my own mother. And in the same way: from the womb out. I was surrounded by Klara.

And, like a Klein-bottle yang and yin, she was surrounded by me too;

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we each defined the other's universe, and there were times when I (and, I am sure, she) was desperate to break out and breathe free air again.

The first day we got back, filthy and exhausted, we automatically headed for Klara's place. That was where the private bath was, there was plenty of room, it was all ready for us and we fell into bed together like old marrieds after a week of backpacking. Only we weren't old marrieds. I had no claim on her. At breakfast the next morning (Earth-born Canadian bacon and eggs, scandalously expensive, fresh pineapple, cereal with real cream, cappucino) Klara made sure to remind me of that fact by ostentatiously paying for it on her own credit. I exhibited the Pavlovian reflex she wanted. I said, "You don't have to do that. I know you have more money than I do."

"And you wish you knew how much," she said, smiling sweetly.

Actually I did know. Shicky had told me. She had seven hundred thousand dollars and change in her account. Enough to go back to Venus and live the rest of her life there in reasonable security if she wanted to, although why anyone would want to live on Venus in the first place I can't say. Maybe that was why she stayed on Gateway when she didn't have to. One tunnel is much like another. "You really ought to let yourself be born," I said, finishing out the thought aloud. "You can't stay in the womb forever."

She was surprised but game. "Bob, dear," she said, fishing a cigarette out of my pocket and allowing me to light it, "you really ought to let your poor mother be dead. It's just so much trouble for me, trying to remember to keep rejecting you so you can court her through me."

I perceived that we were talking at cross purposes but, on the other hand, I perceived that we really weren't. The actual agenda was not to communicate but to draw blood. "Klara," I said kindly, "you know that I love you. It worries me that you've reached forty without, really, ever having had a good, long-lasting relationship with a man."

She giggled. "Honey," she said, "I've been meaning to talk to you about that. That nose." She made a face. "Last night in bed, tired as I was, I thought I might upchuck until you turned the other way. Maybe if you went down to the hospital they could unpack it—"

Well, I could even smell it myself. I don't know what it is about stale surgical packing, but it is pretty hard to take. So I promised I would do that and then, to punish her, I didn't finish the hundred-dollar order of fresh pineapple and so, to punish me, she irritably began shifting my belongings around in her cupboards to make room for the contents of her knapsack. So naturally I had to say, "Don't do that, dear. Much as I love you, I think I'd better move back to my own room for a while."

She reached over and patted my arm. "It will be pretty lonely," she said, stubbing out the cigarette. "I've got pretty used to waking up next to you. On the other hand—"

"I'll pick up my stuff on the way back from the hospital," I said. I

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A NOTE ON BLOWUPS

Dr. Asmenion. Naturally, if you can get good readings on a nova, or especially on a supernova, that's worth a lot. While it's happening, I mean. Later's not much good. And *always* look for our own sun, and if you can identify it take all the tape you can get, at all frequencies, around the immediate area—up to, oh, about five degrees each way anyway. With maximum magnification.

Question. Why's that, Danny?

Dr. Asmenion. Well, maybe you'll be on the far side of the sun from something like Tycho's Star, or the Crab Nebula, which is what's left of the 1054 supernova in Taurus. And maybe you'll get a picture of what the star looked like *before* it blew. That ought to be worth, gee, I don't know, fifty or a hundred thousand right there.

---

wasn't enjoying the conversation that much. I didn't want to prolong it. It is the sort of man-to-woman infight that I try whenever possible to ascribe to premenstrual tension. I like the theory but unfortunately in this case I happened to know that it didn't account for Klara, and of course it leaves unresolved at any time the question of how to account for me.

At the hospital they kept me waiting for more than an hour, and then they hurt me a lot. I bled like a stuck pig, all over my shirt and pants, and while they were reeling out of my nose those endless yards of cotton gauze that Ham Tayeh had stuffed there to keep me from bleeding to death, it felt exactly as if they were pulling out huge gobbets of flesh. I yelled. The little old Japanese lady who was working as out-patient paramedic that day gave me scant patience. "Oh, shut up, please," she said. "You sound like that crazy returnee who killed himself. Screamed for an hour."

I waved her away, one hand to my nose to stop the blood. Alarm bells were going off. "What? I mean, what was his name?"

She pushed my hand away and dabbed at my nose. "I don't know—oh . . . you were from that same hard-luck ship, weren't you?"

"That's what I am trying to find out. Was it Sam Kahane?"

She became suddenly more human. "I'm sorry, sweet," she said. "I guess that was the name. They went to give him a shot to keep him quiet, and he got the needle away from the doctor and—Well, he stabbed himself to death."

It was a real bummer of a day, all right.

In the long run she got me cauterized. "I'm going to put in just a little packing," she said. "Tomorrow you can take it out yourself. Just be slow about it, and if you hemmorrhage get your ass down here in a hurry."

She let me go, looking like an axe-murder victim. I skulked up to Klara's room to change my clothes, and the day went on being rotten. "Fucking Gemini," she snarled at me. "Next time I go out, it's going to be with a Taurean like that fellow Metchnikov."

"What's the matter, Klara?"

"They gave us a bonus. Twelve thousand five! Christ. I tip my maid more than that."

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"How do you know?" I had already divided $12,500 by five, and in the same split-second wondered whether, under the circumstances, they wouldn't divide it by four instead.

"They called on the P-phone ten minutes ago. Jesus. The rottenest son of a bitching trip I've ever been on, and I wind up with the price of one green chip at the casino out of it." Then she looked at my shirt and softened a little. "Well, it's not your fault, Bob, but Geminis never can make up their minds. I should've known that. Let me see if I can find you some clean clothes."

And I did let her do that, but I didn't stay anyway. I picked up my stuff, headed for a drop-shaft, cached my goods at the registry office where I signed up to get my room back and borrowed the use of their phone. When she mentioned Metchnikov's name she had reminded me of something I wanted to do.

* * *

Metchnikov grumbled, but finally agreed to meet me in the schoolroom. I was there before him, of course. He loped in, stopped at the doorway, looked around and said: "Where's what's-her-name?"

"Klara Moynlin. She's in her room." Neat, truthful, deceitful. A model answer.

"Um." He ran an index finger down each jaw-whisker, meeting under the shin. "Come on, then." Leading me, he said over his shoulder, "Actually she would probably get more out of this than you would."

"I suppose she would, Dane."

"Um." He hesitated at the bump in the floor that was the entrance to one of the instruction ships, then shrugged, opened the hatch and clambered down inside.

He was being unusually open and generous, I thought, following him inside. He was already crouched in front of the course-selector panel, setting up numbers. He was holding a portable hand-readout detalinked to the Corporation's master computer system; I knew that he was punching in one of the established settings, and so I was not surprised when he got color almost at once. He thumbed the fine-tuner and waited, looking over his shoulder at me, until the whole board was drowned in shocking pink.

"All right," he said. "Good, clear setting. Now look at the bottom part of the spectrum."

That was the smaller line of rainbow colors along the right side of the board, red to violet. The violet was on the bottom, and the colors merged into one another without break, except for occasional lines of bright color or black. They looked exactly like what the astronomers called Fraunhofer lines, when the only way they had to know what a star or planet was made of was to study it through a spectroscope. They weren't. Fraunhofer lines show what elements are present in a radiation source (or in something that has gotten itself between the radiation source and you). These showed God knows what.

God and, maybe, Dane Metchnikov. He was almost smiling, and astonishingly talkative. "That band of three dark lines in the blue," he said. "See? They seem to relate to

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the hazardousness of the mission. At least the computer printouts show that when there are six or more bands there the ships don't come back."

He had my full attention. "Christ!" I said, thinking of a lot of good people who had died because they hadn't known that. "Why don't they tell us these things in school?"

He said patiently (for him), "Broadhead, don't be a jerk. All this is brand-new. And a lot of it is guesswork. Now, the correlation between number of lines and danger isn't quite so good under six. I mean, if you think that they might add one line for every additional degree of danger, you're wrong. You would expect that the five-band settings would have heavy loss ratios, and when there are no bands at all there there wouldn't be any losses. Only it isn't true. The best safety record seems to be with one or two bands. Three is good, too—but there have been some losses. Zero bands we've had about as many as with three."

For the first time I began to think that the Corporation's science-research people might be worth their pay. "So why don't we just go out on destination settings that are safer?"

"We're not really sure they *are* safer," Metchnikov said, again patiently for him. His tone was far more peremptory than his words. "Also when you have an armored ship you should be able to deal with more risks than the plain ones. Quit with the dumb questions, Broadhead."

"Sorry." I was getting uncomfortable, crouched behind him and peering over his shoulder, so that when he turned to look at me his jaw-whiskers almost grazed my nose. I didn't want to change position.

"So look up here in the yellow." He pointed to five bright bands. "This reading seems to correlate with the success of the mission. God knows what we're measuring—or what the Heechee were measuring—but in terms of financial rewards to the crews, there's a pretty good correlation between the number of lines in that frequency and the amount of money the crews get."

"Wow!"

He went on as though I hadn't said anything. "Now, naturally the Heechee didn't set up a meter to calibrate how much in royalties you or I might make. It has to be measuring something else, who knows what? Maybe it's a measure of population density in that area, or of technological development. Maybe it's a *Guide Michelin*, and all they're saying is that there was a four-star restaurant in that area. But there it is. Five-bar-yellow expeditions bring in a financial return, on the average, that's fifty times as high as two-bar and ten times as high as most of the others."

He turned around again so that his face was maybe a dozen centimeters from mine, his eyes staring right into my eyes. "You want to see some other settings?" he asked, in a tone of voice that demanded I say no, so I did. "Okay." And then he stopped.

I stood up and backed away to get a little more space. "One ques-

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tion, Dane. You probably have a reason for telling me all this before it gets to be public information. What is it?"

"Right," he said. "I want what's her-name for crew if I go in a Three or a Five."

"Klara Moynlin."

"Whatever. She handles herself well, doesn't take up much room, knows—well, she knows how to get along with people better than I do. I sometimes have difficulty in interpersonal relationships," he explained. "Of course, that's only if I take a Three or a Five. I don't particularly want to. If I can find a One, that's what I'm going to take out. But if there isn't a One with a good setting available, I want somebody along I can rely on, who won't get in my hair, who knows the ropes, can handle a ship—all that. You can come too, if you want."

* * *

When I got back to my own room Shicky turned up almost before I started to unpack. He was glad to see me. "I am sorry your trip was unfruitful," he said out of his endless stock of gentleness and warmth. "It is too bad about your friend Kahane." He had brought me a flask of tea, and then perched on the chest across from my hammock, just like the first time.

The disastrous trip was almost out of my mind, which was filled with visions of sugarplums coming out of my talk with Dane Metchnikov. I couldn't help talking about it; I told Shicky everything Dane had said.

He listened like a child to a fairytale, his black eyes shining. "How interesting," he said. "I had heard rumors that there was to be a new briefing for everyone. Just think, if we can go out without fear of death or—" He hesitated, fluttering his wing-gauze.

"It isn't that sure, Shicky," I said.

"No, of course not. But it is an improvement, I think you will agree?" He hesitated, watching me take a pull from the flask of almost flavorless Japanese tea. "Bob," he said, "if you go on such a trip and need an extra man—Well, it is true that I would not be of much use in a lander. But in orbit I am as good as anybody."

"I know you are, Shicky." I tried to put it tactfully. "Does the Corporation know that?"

"They would accept me as crew on a mission no one else wanted."

"I see." I didn't say that I didn't really want to go on a mission no one else wanted. Shicky knew that. He was one of the real old-timers on Gateway. According to the rumor he had had a *big* wad stashed away, enough for Full Medical and everything. But he had given it away or lost it, and stayed on, and stayed a cripple. I knew that he understood what I was thinking, but I was a long way from understanding Shikitei Bakin.

He moved out of my way while I stowed my things, and we gossiped about mutual friends. Sheri's ship had not returned. Nothing to worry about yet, of course. It could easily be out another several weeks without disaster. A Congolese couple from just beyond the star-point in the corridor had brought back a

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huge shipment of prayer fans from a previously unknown Heechee warren, on a planet around an F-2 star in the end of the Orion spiral arm. They had split a million dollars three ways, and had taken their share back to Mungbere. The Forehands—

Louise Forehand stopped in while we were talking about them. "Heard your voices," she said, craning over to kiss me. "Too bad about your trip."

"Breaks of the game."

"Well, welcome home, anyway. I didn't do any better than you, I'm afraid. Dumb little star, no planets that we could find, can't think why in the world the Heechee had a course setting for it." She smiled, and stroked the muscles at the back of my neck fondly. "Can I give you a welcome-home party tonight? Or are you and Klara—?"

"I'd love it if you did," I said, and she didn't pursue the question of Klara. No doubt the rumor had already got around; the Gateway tomtoms beat day and night. She left after a few minutes. "Nice lady," I said to Shicky, looking after her. "Nice family. Was she looking a little worried?"

"I fear so, Robinette, yes. Her daughter Lois is on plus time. They have had much sorrow in that family."

I looked at him. He said, "No, not Willa or the father; they are out, but not overdue. There was a son."

"I know. Henry, I think. They called him Hat."

"He died just before they came here. And now Lois." He inclined his head, then flapped politely over and picked up the empty tea flask on a downstroke of his wing. "I must go to work now, Bob."

"How's the ivy planting?"

He said ruefully, "I no longer have that position, I'm afraid. Emma did not consider me executive material."

"Oh? What are you doing?"

"I keep Gateway esthetically attractive," he said. "I think you would call it 'garbage collector.'"

I didn't know what to say. Gateway was a kind of a trashy place; because of the low gravity, any scrap of paper or bit of featherweight plastic that was thrown away was likely to float anywhere inside the asteroid. You couldn't sweep the floor. The first stroke set everything flying. I had seen the garbage men chasing scraps of newsprint and fluffs of cigarette ash with little hand-pumped vacuum cleaners, and I had even thought about becoming one if I had to. But I didn't like Shicky doing it.

He was following what I was thinking about him without any difficulty. "It's all right, Bob. Really, I enjoy the work. But—please; if you do need a crewman, think of me."

* * *

I took my bonus and paid up my per-capita for three weeks in advance. I bought a few items I needed—new clothes, and some music tapes to get the sound of Mozart and Palestrina out of my ears. That left me about two hundred dollars in money.

Two hundred dollars was a lot like nothing at all. It meant twenty drinks at the Blue Hell, or one chip

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at the blackjack table, or maybe half a dozen decent meals outside the prospectors' commissary.

So I had three choices. I could get another job and stall indefinitely. Or I could ship out within the three weeks. Or I could give up and go home. None of the choices was attractive. But, provided I didn't spend any money on anything much, I didn't have to decide for, oh, a long time—as long as twenty days. I resolved to give up smoking and boughten meals; that way I could budget myself to a maximum spending of nine dollars a day, so that my per capita and my cash would run out at the same time.

I called Klara. She looked and sounded guarded but friendly on the P-phone, so I spoke guardedly and amiably to her. I didn't mention the party, and she didn't mention wanting to see me that night, so we left it at that: nowhere. That was all right with me. I didn't need Klara. At the party that night I met a new girl around called Doreen MacKenzie. She wasn't a girl, really; she was at least a dozen years older than I was, and she had been out five times. What was exciting about her was that she had really hit it once. She'd taken one and a half mil back to Atlanta, spent the whole wad trying to buy herself a career as a PV singer—material writer, manager, publicity team, advertising, demo tapes, the works—and when it hadn't worked she had come back to Gateway to try again. The other thing she was was very, very pretty.

But after two days of getting to know Doreen I was back on the P-phone to Klara. She said, "Come on down," and she sounded anxious; and I was there in ten minutes, and we were in bed in fifteen. The trouble with getting to know Doreen was that I had got to know her. She was nice, and a hell of a racing pilot, but she wasn't Klara Moynlin.

When we were lying in the hammock together, sweaty and relaxed and spent, Klara yawned, ruffled my hair, pulled back her head and stared at me. "Oh, shit," she said drowsily, "I think this is what they call being in love."

I was gallant. "It's what makes the world go around. No, not 'it.' *You* are."

She shook her head regretfully. "Sometimes I can't stand you," she said. "Sagitarreans never make it with Geminis. I'm a fire sign and you—Well, Geminis can't help being confused."

"I wish you wouldn't keep going on about that crap," I said.

She didn't take offense. "Let's get something to eat."

I slid over the edge of the hammock and stood up, needing to talk without touching for a moment. "Dear Klara," I said, "look, I can't let you keep me because you'll be bitchy about it, sooner or later—or if you aren't, I'll be expecting you to, and so I'll be bitchy to you. And I just don't have the money. You want to eat outside the commissary, you do it by yourself. And I won't take your cigarettes, your liquor or your chips at the casino. So if you want to get something to eat go ahead, and I'll meet you later. Maybe we could go for a walk."

She sighed. "Geminis never

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The Gateway Anglican
The Rev. Theo Durleigh, Chaplain
Parish Communion
10:30 Sundays
Evensong by Arrangement

Eric Manier, who ceased to be my warden on 1 December, has left an indelible mark on Gateway All Saint's and we owe him an incalculable debt for placing his multicompetence at our disposal. Born in Elstree, Herts., 51 years ago, he graduated as an LL.B. in the University of London and then read for the bar. Subsequently he was employed for some years in Perth at the natural gas works. If we are saddened for ourselves that he is leaving us, it is tempered with joy that he has now achieved his heart's desire and will return to his beloved Hertfordshire, where he expects to devote his retirement years to civic affairs, transcendental meditation and the study of plainsong. A new warden will be elected the first Sunday we attain a quorum of nine parishioners.

---

know how to handle money," she told me, "but they can be awfully nice in bed."

We put our clothes on and went out and got something to eat, all right, but in the Corporation commissary, where you stand in line, carry a tray and eat standing up. The food isn't bad, if you don't think too much about what substrates they grow it on. The price is right. It doesn't cost anything. They promise that if you eat all your meals in the commissary you will have one hundred plus per cent of all the established dietary needs. You will, too, only you have to eat all of everything to be sure of that. Single-cell protein and vegetable protein come out incomplete when considered independently, so it's not enough to eat the soy-bean jelly or the bacterial pudding alone. You have to eat them both.

The other thing about these meals is they produce a hell of a lot of methane, which produces a hell of a lot of what all ex-Gateway types remember as the Gateway fug.

We drifted down toward the lower levels afterward, not talking much. I suppose we were both wondering where we were going. I don't mean just at that moment. "Feel like exploring?" Klara asked.

I took her hand as we strolled along, considering. That sort of thing was fun. Some of the old ivy-choked tunnels that no one used were interesting, and beyond them were the bare, dusty places no one had troubled even to plant ivy in. Usually there was plenty of light from the ancient walls themselves, still glowing with that bluish Heechee-metal sheen. Sometimes—not lately, but no more than six or seven years ago—people had actually found Heechee artifacts in them, and you never knew when you might stumble on something worth a bonus.

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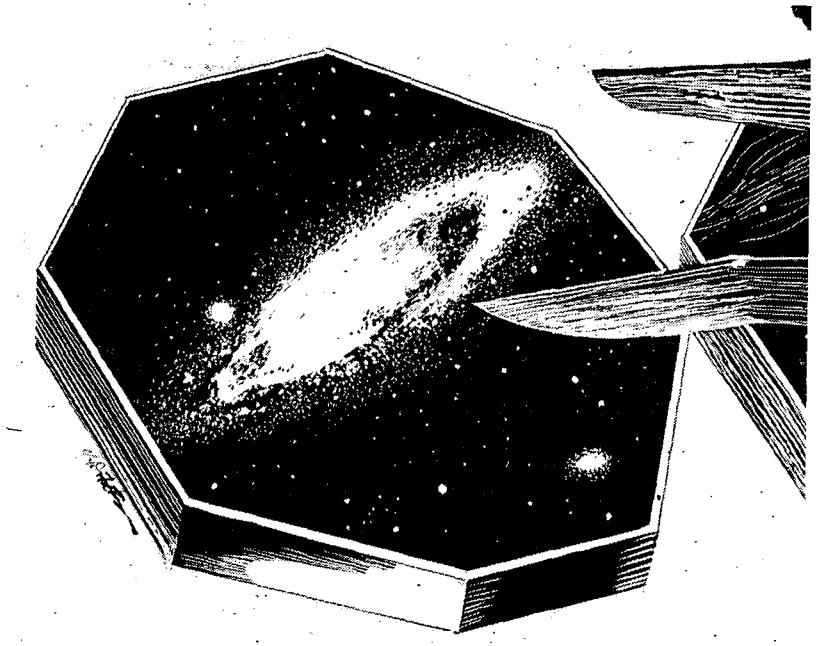

But I couldn't work up much enthusiasm for it, because nothing is fun when you don't have a choice. "Why not?" I said, but a few minutes later, when I saw where we were, I said, "Let's go to the museum for a while."

"Oh, right," she said, suddenly interested. "Did you know they've fixed up the surround room? Metchnikov was telling me about it. They opened it while we were out."

So we changed course, dropped two levels and came out next to the museum. The surround room was a nearly spherical chamber just beyond it. It was big, ten meters or more across, and in order to use it we had to strap on wings like Shicky's, hanging on a rack outside the entrance. Neither Klara nor I had ever used them before, but it wasn't hard. On Gateway you weigh so little to begin with that flying would be the easiest and best way to get around, if there were any places inside the asteroid big enough to fly in.

So we dropped through the hatch into the sphere, and were in the middle of a whole universe. The chamber was walled with hexagonal panels, each one of them projected from some source we could not see, probably digital with liquid-crystal screens.

"How pretty!" Klara cried.

All around us there was a sort of globarama of what the scouting ships had found. Stars, nebulae, planets, satellites. Sometimes each plate showed its own independent thing so that there were, what was it, something like a hundred and twenty-eight separate scenes. Then,

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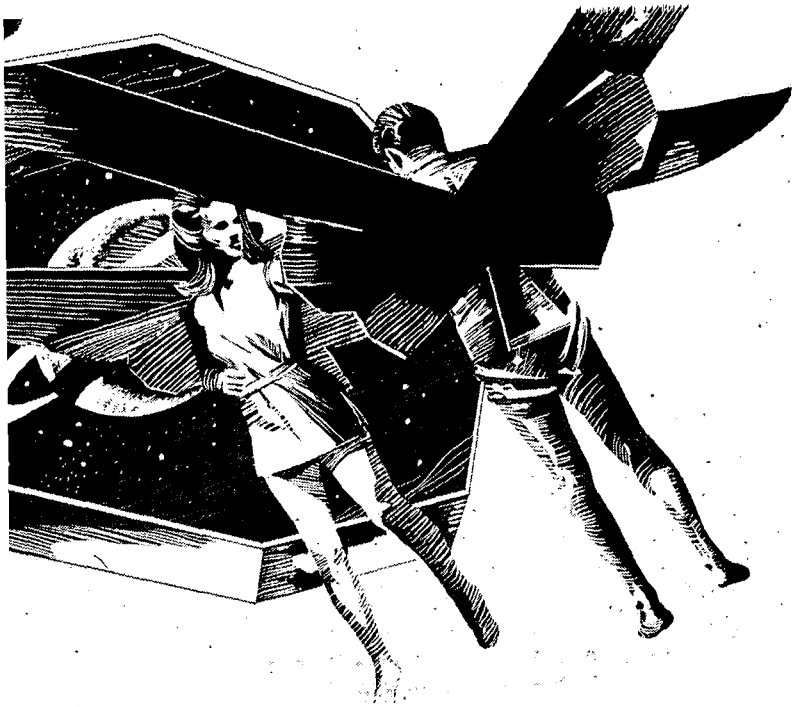

flick, all of them changed; flick again, and they began to cycle, some of them holding their same scene, some of them changing to something new. Flick again, and one whole hemisphere lit up with a mosaic view of the M-31 galaxy as seen from—God knew where.

"Hey," I said, really excited, "this is great!" And it was. It was like being on all the trips any prospector had ever taken, without the drudgery and the trouble and the constant fear.

There was no one there but us, and I couldn't understand why. It was so pretty. You would think there would be a long line of people waiting to get in. One side began to run through a series of pictures of Heechee artifacts, as discovered by prospectors: prayer fans of all colors, well-lining machines, the insides of Heechee ships, some tunnels—Klara cried out that they were places she had been, back home on Venus, but I don't know how she could tell. Then the pattern went back to photographs from space.

Some of them were familiar: I could recognize the Pleiades in one quick six- or eight-panel shot, which vanished and was replaced by a view of Gateway Two from outside, two of the bright young stars of the cluster shining in reflection off its sides. I saw something that might have been the Horsehead Nebula, and a doughnut-shaped puff of gas and dust that was either the Ring Nebula in Lyra or what an exploring team had found a few orbits before they called the French Cruller, in the skies of a planet where Heechee digs had been de-

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tected, but not reached, under a frozen sea.

We hung there for half an hour or so, until it began to look as though we were seeing the same things again, and then we fluttered up to the hatch, hung up the wings and sat down for a cigarette break in a wide place in the tunnel outside the museum.

Two women I recognized vaguely as Corporation maintenance crews came by, carrying rolled-up strap-on wings. "Hi, Klara," one of them greeted her. "Been inside?"

Klara nodded. "It was beautiful," she said.

"Enjoy it while you can," said the other one. "Next week it'll cost you a hundred dollars. We're putting in a P-phone taped lecture system tomorrow, and they'll have the grand-opening before the next tourists show up."

"It's worth it," Klara said, but then she looked at me.

I became aware that, in spite of everything, I was smoking one of her cigarettes. At five dollars a pack I couldn't afford very much of that, but I decided to buy at least one pack out of that day's allowance, and to make sure she took as many from me as I took from her.

"Want to walk some more?"

"Maybe a little later," I said. I was wondering how many men and women had died to take the pretty pictures we had been watching, because I was facing one more time the fact that sooner or later I would have to submit myself again to the lethal lottery of the Heechee ships, or give up. I wondered if the new information Metchnikov had given me was going to make a real difference. Everyone was talking about it now; the Corporation had scheduled an all-phone announcement for the next day.

"That reminds me," I said. "Did you say you'd seen Metchnikov?"

"I wondered when you'd ask me about that," she said. "Sure. He called and told me he'd shown the color-coding stuff to you. So I went down and got the same lecture. What do you think, Bob?"

I stubbed out the cigarette. "I think everybody in Gateway's going to be fighting for the good launches, that's what I think."

"But maybe Dane knows something. He's been working with the Corporation."

"I don't doubt he does." I stretched and leaned back, rocking against the low gravity, considering. "He's not that nice a guy, Klara. *Maybe* he'd tell us if there's something good coming up, you know, that he knows something special about. But he'll want something for it."

Klara grinned. "He'd tell me."

"What do you mean?"

"Oh, he calls me once in a while. Wants a date."

"Oh, shit, Klara." I was feeling pretty irritated by then. Not just at Klara, and not just about Dane. About money. About the fact that if I wanted to go back into the surround room next week it would cost me half my credit balance. About the dark, shadowed image looming up ahead in time, and not very far ahead, when I would once again have to make up my mind to do what I was scared silly to do again. "I wouldn't trust that son of a bitch as far as—"

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"Oh, relax, Bob. He's not such a bad guy," she said, lighting another cigarette and leaving the pack where I could reach it if I wanted it. "Sexually, he might be kind of interesting. That raw, rough, rude Taurean thing—Anyway, you've got as much to offer him as I do."

"What are you talking about?"

She looked honestly surprised. "I thought you knew he swings both ways."

"He's never given me any indication—" But I stopped, remembering how close he liked to get when he was talking to me, and how uncomfortable I was with him inside my body space.

"Maybe you're not his type," she grinned. Only it wasn't a kindly grin. A couple of Chinese crewmen, coming out of the museum, looked at us with interest, and then politely looked away.

"Let's get out of here, Klara."

So we went to the Blue Hell, and of course I insisted on paying my share of the drinks. Forty-eight dollars down the tube in one hour. And it wasn't all that much fun. We wound up in her place in bed again. That wasn't all that much fun, either. The quarrel was still there when we finished. And the time was slipping by.

* * *

There are people who never pass a certain point in their emotional development. They cannot live a normal free and easy, give and take life with a sexual partner for more than a short time. Something inside them will not tolerate happiness. The better it gets, the more they have to destroy it.

Hacking around Gateway with Klara, I began to suspect that I was one of those people. I knew Klara was. She had never maintained a relationship with a man for more than a few months in her life; she told me so herself. Already I was pretty close to a record with her. And already it was making her edgy.

In some ways Klara was a lot more adult and responsible than I ever would be. The way she got to Gateway in the first place, for instance. She didn't win a lottery to pay her fare. She earned it and saved it, painfully, over a period of years. She was a fully qualified air-body driver with a guide's license and an engineering degree. She had lived like a fish-farmer while earning an income that would have entitled her to a three-room flat in the Heechee warrens on Venus, vacations on Earth and Major Medical. She knew more than I did about the growing of food on hydrocarbon substrates, in spite of all my years in Wyoming. (She had invested in a food factory on Venus, and for all her life she had never put a dollar into anything she didn't fully understand.) When we were out together, she was the senior member of the crew. It was she Metchnikov wanted as a shipmate—if he wanted anybody—not me. She had been my teacher!

And yet between the two of us she was as inept and unforgiving as ever I had been with Sylvia, at the age of twenty, or with Deena, Janice, Liz, Ester or any of the other two-week romances that had all ended badly in all the years after Sylvia. It was, she said, because she was a Sagittarius and I was a

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Gemini. Sagittarians were prophets. Sagittarians loved freedom. Us poor Geminis were just terribly mixed up and indecisive. "It's no wonder," she told me gravely one morning, eating breakfast in her room (I accepted no more than a couple of sips of coffee), "that you can't make your mind up to go out again. It isn't just physical cowardice, dear Robinette. Part of your twin nature wants to triumph. Part wants to fail. I wonder which side you will allow to win?"

I gave her an ambiguous answer. I said, "Honey, go screw yourself." And she laughed, and we got through that day. She had scored her point.

The Corporation made its expected announcement, and there was an immense flurry of conferring and planning and exchanging guesses and interpretations among all of us. It was an exciting time. Out of the master computer's files the Corporation pulled twenty launches with low danger factors and high profit expectancies. They were subscribed, equipped and launched within a week.

And I wasn't on any of them, and neither was Klara; and we tried not to discuss why.

Surprisingly, Dane Metchnikov didn't go out on any of them. He knew something, or said he did. Or didn't say he didn't when I asked him, just looked at me in that glowering, contemptuous way and didn't answer. Even Shicky *almost* went out. He lost out in the last hour before launch to the Finnish boy who had never been able to find anyone to talk to; there were four Saudis who wanted to stay together, and settled for the Finnish kid to fill out a Five. Louise Forehand didn't go out either, because she was waiting for some member of her family to come back, so as to preserve some sort of continuity. You could eat in the Corporation commissary now without waiting in line, and there were empty rooms all up and down my tunnel. And one night Klara said to me, "Bob, I think I'm going to go to a shrink."

I jumped. It was a surprise. Worse than that, a betrayal. Klara knew about my early psychotic episode and what I thought of psycho-therapists.

I withheld the first dozen things I thought of to say to her—tactical: "I'm glad; it's about time"; hypocritical: "I'm glad, and please tell me how I can help"; strategic: "I'm glad, and maybe I ought to go too, if I could afford it." I refrained from the only truthful response, which would have been: "I interpret this move on your part as a condemnation of me for bending your head." I didn't say anything at all, and after a moment she went on:

"I need help, Bob. I'm confused."

That touched me, and I reached out for her hand. She just let it lay limp in mine, not squeezing back and not pulling away. She said: "My psychology professor used to say that was the first step—no, the second step. The first step when you have a problem is to know you have it. Well, I've known that for some time. The second step is to make a decision: Do you want to keep the problem, or do you want to do something about it? I've decided to do something about it."

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"Where will you go?" I asked, carefully non-commital.

"I don't know. The groups don't seem to do much. There's a shrink machine available on the Corporation master computer. That would be the cheapest way."

"Cheap is cheap," I said. "I spent two years with the shrink machines when I was younger, after I—I was kind of messed up."

"And since then you've been operating for twenty years," she said reasonably. "I'd settle for that. For now, anyway."

I patted her hand. "Any step you take is a good step," I said kindly. "I've had the feeling all along that you and I could get along better if you could clear some of that old birthright crap out of your mind. We all do it, I guess, but I'd rather have you angry at me on my own than because I'm acting as a surrogate for your father or something."

She rolled over and looked at me. Even in the pale Heechee-metal glow I could see surprise on her face. "What are you talking about?"

"Why, your problem, Klara. I know it took a lot of courage for you to admit to yourself that you needed help."

"Well, Bob," she said, "it did, only you don't seem to know what the problem is. Getting along with you isn't the problem. *You* may be the problem. I just don't know. What I'm worried about is stalling. Being unable to make decisions. Putting it off so long before I went out again—and, no offense, picking a Gemini like you to go out with."

"I hate it when you give me that astrology crap!"

"You do have a mixed up personality, Bob, you know you do. And I seem to lean on that. I don't want to live that way."

We were both wide awake again by then, and there seemed to be two ways for things to go. We could get into a but-you-said-you-loved-me, but-I-can't-stand-this scene, probably ending with either more sex or a wide-open split; or we could do something to take our minds off it. Klara's thoughts were clearly moving in the same direction as mine, because she slid out of the hammock and began pulling on clothes. "Let's go up to the casino," she said brightly. "I feel lucky tonight."

* * *

There weren't any ships in and no tourists. There weren't all that many prospectors, either, with so many shiploads going out in the past few weeks. Half the tables at the casino were closed down, with the green cloth hoods over them. Klara found a seat at the black jack table, signed for a stack of hundred-dollar markers, and the dealer let me sit next to her without playing. "I told you this was my lucky night," she said when, after ten minutes, she was more than two thousand dollars ahead of the house.

"You're doing fine," I encouraged her, but actually it wasn't that much fun for me. I got up and roamed around a little bit. Dane Metchnikov was cautiously feeding five-dollar coins into the slots but he didn't seem to want to talk to me. Nobody was playing baccarat. I told Klara I was going to get a cup

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of coffee at the Blue Hell (five dollars, but in slow times like this they would keep filling the cup for nothing). She flashed me a quarter-profile smile without ever taking her eyes off the cards.

In the Blue Hell Louise Forehand was sipping a rocket-fuel-and-water . . . well, it wasn't really rocket fuel, just old-fashioned white whiskey made out of whatever happened to be growing well that week in the hydroponics tanks. She looked up with a welcoming smile, and I sat down next to her.

She had, it suddenly occurred to me, a rather lonely time of it. No reason she had to. She was—well, I don't know exactly what there was about her, but she seemed like the only non-threatening, non-reproachful, non-demanding person on Gateway. Everybody else either wanted something I didn't want to give, or refused to take what I was offering. Louise was something else. She was at least a dozen years older than I, and really very good looking. Like me she wore only the Corporation standard clothes, short coveralls in choice of three unattractive colors. But she had remade them for herself, converting the jumpsuit into a two-piece outfit with tight shorts, bare midriff and a loose, open sort of top. I discovered that she was watching me take inventory and I suddenly felt embarrassed. "You're looking good," I said.

"Thanks, Bob. All original equipment, too," she bragged, and smiled. "I never could afford anything else."

"You don't need anything you haven't had all along," I told her sincerely, and she changed the subject.

"There's a ship coming in," she

Mission Report

Vessel A3-7, Voyage 022D55. Crew S. Rigney, E. Tsein, M. Sindler.

Transit time 18 days 0 hours. Position vicinity Xi Pegasi A.

Summary. "We emerged in close orbit of a small planet approximately .9 A.U. from primary. The planet is ice-covered, but we detected Heechee radiation from a spot near the equator. Rigney and Mary Sindler landed nearby and with some difficulty—the location was mountainous—reached an ice-free warm area within which was a metallic dome. Inside the dome were a number of Heechee artifacts, including two empty landers, some equipment of unknown use and a heating coil. We succeeded in transporting most of the smaller items to the vessel. It proved impossible to stop the heating coil entirely, but we reduced it to a low level of operation and stored it in the lander for the return. Even so, Mary and Tsien were seriously dehydrated and in coma when we landed.

"There was intense Heechee radiation from a source near the other component of the binary, Xi Pegasi B. The distance was too great for us to cover in the lander."

Corporation evaluation: Heating coil analyzed and rebuilt. Award of $3,000,000 made to crew-against royalties. Other artifacts not as yet analyzed. Award of $25,000 per kilo mass, total $675,000, made against future exploitation if any.

Note: Three additional expeditions, including one Armored Five, were sent to the same destination. None returned.

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said. "Been a long time out, they say."

Well, I knew what that meant to her, and that explained why she was sitting around in the Blue Hell instead of being asleep at that hour. I knew she was worried about her daughter, but she wasn't letting it paralyze her.

She had a very good attitude about prospecting, too. She was afraid of going out, which was sensible. But she didn't let that keep her from going, which I admired a lot. She was still waiting for some other member of her family to return before she signed on again, as they had agreed, so that whoever did come back would always find family waiting.

She told me a little more about their background. They had lived, as far as you could call it living, in the tourist traps of the Spindle on Venus, surviving on what they could eke out, mostly from the cruise ships. There was a lot of money there, but there was also a lot of competition. The Forehands had at one time, I discovered, worked up a nightclub act: singing, dancing, comedy routines. I gathered that they were not bad, at least by Venus standards. But the few tourists that were around most of the year had so many other birds of prey battling for a scrap of their flesh that there just wasn't enough to nurture them all. Sess and the son (the one who had died) had tried guiding, with an old airbody they had managed to buy wrecked and rebuild. No big money there. The girls had worked at all kinds of jobs. I was pretty sure that Louise, at least, had been a hooker for a while, but that hadn't paid enough to matter either, for the same sorts of reasons as everything else. They were nearly at the end of their rope when they managed to get to Gateway.

It wasn't the first time for them. They'd fought hard to get off Earth in the first place, when Earth got so bad for them that Venus had seemed a less hopeless alternative. They had more courage, and more willingness to pull up stakes and go, than any other people I'd ever met.

"How did you pay for all this travel?" I asked.

"Well," said Louise, finishing her drink and looking at her watch, "going to Venus we traveled the cheapest way there is. High-mass load. Two hundred and twenty other immigrants, sleeping in shoulder clamps, lining up for two-minute appointments in the toilets, eating compressed dry rations and drinking recycled water. It was a hell of a way to spend forty thousand dollars apiece. Fortunately the kids weren't born yet, except Hat, and he was small enough to go for quarter-fare."

"Hat's your son? What—"

"He died," she said.

I waited, but when she spoke again what she said was: "They should have a radio report from that incoming ship by now."

"It would have been on the P-phone."

She nodded, and for a moment looked worried. The Corporation always makes routine reports on incoming contacts. If they don't have a contact—well, dead prospectors don't check in by radio. So I took

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her mind off her troubles by telling her about Klara's decision to see a shrink. She listened and then put her hand over mine and said, "Don't get sore, Bob. Did you ever think of seeing a shrink yourself?"

"I don't have the money, Louise."

"Not even for a group? There's a primal-scream bunch on Level Darling. You can hear them sometimes. And there've been ads for everything—R/A, EST, patterning. Of course, a lot of them may have shipped out."

But her attention wasn't on me. From where we were sitting we could see the entrance to the casino, where one of the croupiers was talking interestedly to a crewman from the Chinese cruiser. Louise was staring that way.

"Something's going on," I said. "I would have added, 'Let's go look,' but Louise was out of the chair and heading for the casino before me.

Play had stopped. Everybody was clustered around the blackjack table, where, I noticed, Dane Metchnikov was now sitting next to Klara in the seat I had vacated, with a couple of twenty-five dollar chips in front of him. And in the middle of them was Shicky Bakin, perched on a dealer's stool, talking. "No," he was saying as I came up, "I do not know the names. But it's a Five."

"And they're all still alive?" somebody asked.

"As far as I know. Hello, Bob. Louise." He nodded politely to us both. "I see you've heard?"

"Not really," Louise said, reaching out unconsciously to hold my hand. "Just that a ship is in. But you don't know the names?"

Dane Metchnikov craned his head around to glare at her. "Names," he growled. "Who cares? It's none of us, that's what's important. And it's a big one." He stood up. Even at that moment I noticed the measure of his anger: he forgot to pick up his chips from the blackjack table. "I'm going down there," he announced. "I want to see what a once-in-a-lifetime score looks like."

* * *

The cruiser crews had closed off the area, but one of the guards was Francy Hereira. There were a hundred people around the dropshaft, and only Hereira and two girls from the American cruiser to keep them back. Metchnikov plunged through to the lip of the shaft, peering down, before one of the girls chased him away. We saw him talking to another five-bracelet prospector. Meanwhile we could hear snatches of gossip:

"—almost dead. They ran out of water."

"Nah! Just exhausted. They'll be all right—"

"—ten million dollar bonus if it's a nickel, and then the royalties!"

Klara took Louise's elbow and pulled her toward the front. I followed in the space they opened. "Does anybody know whose ship it was?" she demanded.

Hereira smiled wearily at her, nodded at me, and said, "Not yet, Klara. They're searching them now. I think they're going to be all right, though."

Somebody behind me called out, "What did they find?"

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"Artifacts. New ones, that's all I know."

"But it was a Five?" Klara asked. Hereira nodded, then peered down the shaft.

"All right," he said, "now, please back up, friends. They're bringing some of them up now."

We all moved microscopically back, but it didn't matter; they weren't getting off at our level anyway. The first one up the cable was a Corporation bigwig whose name I didn't remember, then a Chinese guard, then someone in a Terminal Hospital robe with a medic on the same grip of the cable, holding him to make sure he didn't fall. I knew the face but not the name; I had seen him at one of the farewell parties, maybe at several of them, a small, elderly black man who had been out two or three times without scoring. His eyes were open and clear enough, but he looked infinitely fatigued. He looked without astonishment at the crowd around the shaft, and then was out of sight.

I looked away and saw that Louise was weeping quietly, her eyes closed. Klara had an arm around her. In the movement of the crowd I managed to get next to Klara and look a question at her. "It's a Five," she said softly. "Her daughter was in a Three."

I knew Louise had heard that, so I patted her and said, "I'm sorry, Louise," and then a space opened at the lip of the shaft and I peered down.

I caught a quick glimpse of what ten or twenty million dollars looked like. It was a stack of hexagonal boxes made out of Heechee metal, not more than half a meter across and less than that tall. Then Francy Hereira was coaxing, "Come on, Bob, get back, will you?" And I stepped away from the shaft while another prospector in a hospital robe came up. She didn't see me as she went past; in fact her eyes were closed. But I saw her. It was Sheri.

XXI

"I feel pretty foolish, Sigfrid," I say.

"Is there some way I can make you feel more comfortable?"

"You can drop dead." He has done his whole room over in nursery-school motifs, for Christ's sake. And the worst part is Sigfrid himself. He is trying me out with a surrogate mother this time. He is on the mat with me, a big stuffed doll, the size of a human being, warm, soft, made out of something like a bath towel stuffed with foam. It feels good, but—"I guess I don't want you to treat me like a baby," I say, my voice muffled because I'm pressing my face against the toweling.

"Just relax, Robby. It's all right."

"In a pig's ass it is."

He pauses, and then reminds me: "You were going to tell me about your dream."

"Yech."

"I'm sorry, Robby?"

"I mean I don't really want to talk about it. Still," I say quickly, lifting my mouth away from the toweling, "I might as well do what you want. It was about Sylvia, kind of."

"Kind of, Robby?"

"Well, she didn't look like her-

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Out in the holes
where the Heechee hid

Out in the caves
of the stars

Sliding the tunnels
they slashed and slid

Healing the Heechee-
hacked scars,

We're coming through!

Little lost Heechee,
we're looking for you.

---

self, exactly. More like—I don't know, someone older, I think. I haven't thought of Sylvia in years, really. We were both kids. . . ."

"Please go on, Robby," he says after a moment.

I put my arms around him, looking up contentedly enough at the wall of circus-poster animals and clowns. It is not in the least like any bedroom I occupied as a child, but Sigfrid knows enough about me already, there is no reason for me to tell him that.

"The dream, Robby?"

"I dreamed we were working in the mines. It wasn't actually the food mines. It was, physically, I would say more like the inside of a Five—one of the Gateway ships, you know? Sylvia was in a kind of a tunnel that went off it."

"The tunnel went off?"

"Now, don't rush me into some kind of symbolism, Sigfrid. I know about vaginal images and all that. When I say 'went off,' I mean that the tunnel started in the place where I was and led in a direction away from it." I hesitated, then told him the hard part. "Then her tunnel caved in. Sylvia was trapped."

I sat up. "What's wrong with that," I explained, "is that really that couldn't happen. You only tunnel in order to plant charges to loosen up the shale. All the real mining is scoop-shovel stuff. Sylvia's job would never have put her in that position."

"I don't think it matters if it could really have happened, Robby."

"I suppose not. Well, there was Sylvia, trapped inside the collapsed tunnel. I could see the heap of shale stirring. It wasn't really shale. It was fluffy stuff, more like scrap paper. She had a shovel, and she was digging her way out. I thought she was going to be all right. She was digging a good escape hole for herself. I waited for her to come out. . . .only she didn't come out."

Sigfrid lies warm and waiting in my arms. It is good to feel him there.

Of course, he isn't really there. He isn't really anywhere, except maybe in the central data stores in Washington Heights, where the big machines are kept. All I have is his remote-access terminal in a bunny suit.

"Is there anything else, Robby?"

"Not really. Not part of the dream, anyway. But—well, I do have a feeling. I feel as though I kicked Klara in the head to keep her from coming out. As though I was afraid the rest of the tunnel was going to fall on me."

"What do you mean by a 'feeling,' Rob?"

"What I said. It wasn't part of

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the dream. It was just that I felt—I don't know."

He waits, then he tries a different approach. "Bob. Are you aware that the name you said just then was 'Klara,' not 'Sylvia?' "

"Really? That's funny. I wonder why."

He waits, then he prods a little. "Then what happened, Rob?"

"Then I woke up."

I roll over on my back and look up at the ceiling, which is textured tile with glittery five-pointed stars pasted to it. "That's all there is," I say. Then I add, conversationally, "Sigfrid, I wonder if all this is getting anywhere."

"I don't know if I can answer that question, Rob."

"If you could," I say, "I would have made you do it before this." I still have S. Ya's. little piece of paper, which gives me a kind of security I prize.

"I think," he says, "that there is somewhere to get. By that I mean I think there is something in your mind that you don't much want to think of, to which this dream is related."

"Something about Sylvia, for Christ's sake? That was *years* ago."

"That doesn't really matter, does it?"

"Oh, shit. You bore me, Sigfrid! You really do." Then I reflect. "Say, I'm getting angry. What does that mean?"

"What do you think it means, Rob?"

"If I knew I wouldn't have to ask you. I wonder. Am I trying to cop out? Getting angry because you're getting close to something?"

"Please don't think about process, Rob. Just tell me how you feel."

"Guilty," I say at once, without knowing that's what I was going to say.

"Guilty about what?"

"Guilty about—I'm not sure." I lift my wrist to look at my watch. We've got twenty minutes yet. A hell of a lot can happen in twenty minutes, and I stop to think about whether I want to get really shaken up. I've got a game of duplicate lined up for that afternoon, and I have a good chance to get into the finals. If I don't mess it up. If I keep my concentration.

"I wonder if I oughtn't to leave early today, Sigfrid," I say.

"Guilty about what, Rob?"

"I'm not sure I remember." I stroke the bunny neck and chuckle. "This is really nice, Sigfrid, although it took me a while to get used to it."

"Guilty about what, Rob?"

I scream: "About murdering her, you jerk!"

"You mean in your dream?"

"No! Really. Twice."

I know I am breathing hard, and I know Sigfrid's sensors are registering it. I fight to get control of myself, so he won't get any crazy ideas. I go over what I have just said in my mind, to tidy it up. "I didn't really murder Sylvia, that is. But I tried! Went after her with a knife!"

Sigfrid, calm, reassuring: "It says in your case history that you had a knife in your hand when you had a quarrel with your friend, yes. It doesn't say you 'went after her.' "

"Well, why the hell do you think

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they put me away? It's just luck I didn't cut her throat."

"Did you, in fact, use the knife against her at all?"

"Use it? No. I was too mad. I threw it on the floor and got up and punched her."

"If you were really trying to murder her, wouldn't you have used the knife?"

"Ah!" Only it was more like 'yech'; the word you sometimes see written as "pshaw." "I only wish you'd been there when it happened, Sigfrid. Maybe you would have talked them out of putting me away."

The whole session is going sour. I know it's always a mistake to tell him about my dreams. He twists them around. I sit up, looking with contempt at the crazy furnishings Sigfrid has dreamed up for my benefit, and I decide to let him have it, straight from the shoulder.

"Sigfrid," I say, "as computers go, you're a nice guy, and I enjoy these sessions with you in an intellectual way. But I wonder if we haven't gone about as far as we can go. You're just stirring up old, unnecessary pain and I frankly don't know why I let you do that to me."

"Your dreams are full of pain, Bob."

"So let it stay in my dreams. I don't want to go back to all that same stale kind of crap they used to give me at the Institute. Maybe I do want to go to bed with my mother. Maybe I do hate my father because he died and deserted me. So what?"

"I know that is a rhetorical question, Bob, but the way to deal with these things is to bring them out into the open."

"For what? To make me hurt?"

"To let the inside hurt come out where you can deal with it."

"Maybe it would be simpler all around if I just made up my mind to go on hurting a little bit, inside. As you say, I'm well compensated, right? I'm not denying that I've got something out of all this. There are times, Sigfrid, when we get through with a session, and I really get a lift out of it. I go out of here with my head full of new thoughts, and the sun is bright on the dome and the air is clean and everybody seems to be smiling at me. But not lately. Lately I think it's very boring and unproductive, and what would you say if I told you I wanted to pack it in?"

"I would say that that was your decision to make, Bob. It always is."

"Well, maybe I'll do that." The old devil outwaits me. He knows I'm not going to make that decision, and he is giving me time to realize it for myself. Then he says:

"Bob? Why did you say you murdered her twice?"

I look at my watch before I answer, and I say, "I guess it was just a slip of the tongue. I really do have to go now, Sigfrid."

I pass up the time in his recovery room, because I don't actually have anything to recover from. Besides I just want to get out of there. Him and his dumb questions. He acts so wise and superior, but what does a mechanical bunny know?

TO BE CONTINUED

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GALAXY BOOKSHELF

Spider Robinson

Mindbridge, Joe Haldeman, St. Martin's Press, 194 pp., $7.95

Good Neighbors and Other Strangers, Edgar Pangborn, Collier, 195 pp., $1.50

Harlan!, Harlan Ellison, Alternate Worlds Recordings, timing & price unknown

The Curve of Binding Energy, John McPhee, Farrar Strauss & Giroux, 232 pp., $7.95

The Deltoid Pumpkin Seed, John McPhee, Farrar Strauss & Giroux, 184 pp., $6.95

Fantastic Nudes, Stephen Fabian, de la Ree Publications, 10 plates, $8

Starfawn, Preiss, Fabian, Kawecki & Severin, Pyramid, unnumbered, $1

The Frazetta Treasury, Frank Frazetta, publisher, pages & price unknown

Aniara, Harry Martinson, Avon, 160 pp., $2.25 (SF Rediscovery series)

Rissa Kerguelen, F. M. Busby, Berkley/Putnam, 397 pp., price unknown

The Multiple Man, Ben Bova, Bobbs-Merrill 210 pp., $6.95

The Last Starship From Earth, John Boyd, Berkley, 182 pp., 75¢

Run, Come See Jerusalem, Richard C. Meredith, Ballantine, 240 pp., $1.50

Stargate, Stephen Robinett, St. Martin's, 218 pp., $7.95

The Moon Is A Harsh Mistress, Robert A. Heinlein, Berkley,

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302 pp., $1.50

The Light Fantastic, Alfred Bester, Berkley/Putnam, 254 pp., $7.95

Ancient, My Enemy, Gordon R. Dickson, DAW, 206 pp., $1.50

In the Problem Pit, Frederik Pohl, Bantam, 194 pp., $1.50

IN THE FACE of the strongest temptation imaginable, I will *not* tell you a whole lot about Nonexistacon I, the most mismanaged fiasco in the history of fandom. I'd love to tell you about how I got conned (pun intended) into being Trawnacon's free Guest of Honor (they just didn't *tell* me I was GoH until I arrived), and what went wrong with the movies (ever seen a Cinemascope print through an ordinary lens?), and all the complex foulups which led to there being exactly eight paid attendees and *no* sf hucksters (in *Toronto*!), and why I got home four days late *by train* (no bullshit honest to god I swear: CN "air-conditions" those cars by shoveling a half a ton of ice underneath each one. I'm serious, I tell you), and I would most especially like to name the single schmuck at whose feet can be laid virtually all responsibility for both the fiasco and its magnitude.

But it would take a whole column, and those who *need* to be warned against the said schmuck will hear by grapevine, and besides this is a *bookshelf*, dammit. So. I'll only tell you the relevant part: the Good Part.

Since the only hucksters who heard about the con were comic book dealers, I was forced to venture into Toronto itself to slake my whetted thirst for sf. And there, on June 19, 1976, I found the answer to all of our prayers.

Since I asked you folks for feedback, the mailbox has swelled to bursting, and one complaint has been universal: "What the hell good," you've asked repeatedly, "does it do us to read in your column about all these nifty books—when the local drugstore doesn't stock 'em and the local bookstore's distributors won't take orders for less than ten copies?" It's a valid complaint, and up to now the only thing I've had to suggest is that you find somehow a bookstore (like The Corner Bookstore, Rte. 25A, Setauket, NY) courageous enough to try and survive *independently*, without knuckling under to the mass mediocrity of the distribution/monopoly. But such are as common as wool brassieres—so I've found you a better answer.

Know ye that there exists in far Toronto a vasty store that men call Bakka, and that it stocks only sf and related books, and that its collection in both paper and hardback is immense, and *that it has an excellent mail order service.*

I spent two delirious hours in Bakka, babbling and raving, buying books that I had thought only rumors, locating legendary unobtainable classics and even old mags

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in excellent condition, *and* British and foreign-language editions unobtainable anywhere else I know. *Then* I found out I could have stayed home in the Red Palace and enjoyed the same orgy.

I spoke at great length with the management, and they strike me as honest, competent men and women passionately devoted to sf. They will send you their new catalog/fanzine, an approximately 100-page mag chock full of articles, cartoons and comix in addition to the book listing, for $1.50, and promise to update it at least twice a year. They ask that payments be made by either *certified* check or money order, either Canadian funds or add 3¢ on the dollar (yes, Canadian money is worth more—although every bank in America routinely knocks off 5% in changing a traveler's money. A hallmark of American courtesy and fair play). On orders over $15 Bakka will pay the postage—but those of you in the States want to bear in mind that the insidious customs parasites will probably nick you ten percent or so. Worth it, in my opinion: Bakka's selection had me drooling down my bib, and a fast browse through the catalog shows me ten more gems I missed and will order as soon as Baen comes across with my pay for this column.

Those of you who're cynical or paranoid: wait till next month, and I'll tell you how *my* mail order came out. The address (bet you thought I'd forget, didn't you?) is Bakka, 282-286 Queen St., Toronto, Ontario M5V 2A1 (Canada).

Back to the books I go, secure in the knowledge that, in telling you about these volumes, I am no longer micturating upwind. No more frustration, no more tantalizing glimpses of The Promised Book—gee, it's nice to be *relevant* again.

Thanks, Bakka.

* * *

And the first book on the list is a genuine masterpiece, by Ghod.

Run do not walk to wherever you gotta go to score a copy of *Mindbridge*, Joe Haldeman's second and best novel. It's too early in the year to make Hugo predictions, but *Mindbridge* is certain to be at least a finalist.

I wish I could give you the usual capsule plot summary, the quick sketch, the teasers that make you want to hear more, but *Mindbridge* refuses condensation or distillation down to a manageable size. Perhaps I might handle it from another direction, by claiming that a) in terms of style, it is the equal of *Stand On Zanzibar*, b) in terms of attention-grabbing and pace, it is the equal of anything Alfred Bester ever wrote, c) in terms of scope, it is the equal of Joe's own Nebula-and Hugo-winning *Forever War*, d) in terms of characterization it is superior to *War*, and e) in terms of sheer story

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it is damn near unmatched.

It is, in sum, one helluva book, through all kinds of critical goggles. There ain't no such thing as a book everybody loves, and at least two friends of mine have come away from *Bridge* with complaints—stuff like "the alien psychology was a little inconsistent" (seems to me that makes it *more* believable) and "a certain interesting concept was left undeveloped" (you want Joe to do *all* your imaging for you?) and "the technological developments advanced his plot a bit too conveniently" (you mean there was *too much* science?), and I have no doubt that you can unearth gripes of your own. But I strongly suggest that you begin reading well before suppertime (if you are one of those unfortunates who has to get up in the mornings), because there's no *way* you'll put it down unfinished.

I guess I *could* give you a kind of summary, as misleading as they always are (by virtue of what they *don't* say), by calling *Mindbridge* the most mature study of telepathy since John Brunner's *The Whole Man*. For those of you who wondered if Joe could sustain the level-of-excellence set by his first novel: no, he can't. He has to *get better*.

He seems to be that kind of writer.

Lucky us.

* * *

As I told you in my Pangborn panegyric a few months ago, Edgar began writing before there was hair—but dated the *true* beginning of his writing career from the publication (in *Galaxy*, June 1951) of "Angel's Egg," a novelette created *twenty years* after the publication of his first novel. When I read that in the *Locus* obit, I had only the vaguest of recollections of "Egg," a story I had last read at age eight, so I resolved to hunt for it. And then a generous fan whose name and letter I have unforgivably lost sent me a copy of *Good Neighbors and Other Strangers*, the Pangborn short-collection which contains "Egg," and nine others.

Knowing Edgar, I expected this book to rate 100% on the Spider Scale (stories enjoyed - total stories X 100). But I was way off in this prediction. I sometimes allot an extra 5% for a story I consider to be in some way classic, and so this collection rates *150%*. It is the best single-author antho I have *ever* read, and I'm including Tiptree, Heinlein and Delany in my calculations.

But 150% ain't high enough. The other nine stories are masterpieces, but "Angel's Egg" is the finest novelette I know, a story that leaves you feeling warm and proud and happy-sad, one of those rare works where style, characterization and story are one and the same, facets of a single operant genius. Many intelligent and talented writers have

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indicted mankind; Edgar is one of the rare, mature, *wise* few who have learned to forgive it.

I don't *care* if *Neighbors* isn't available in your area: you MUST read it. Bakka will have it, or you could write to Collier (a division of MacMillan; try the NYC phonebook), and if *that* don't work, come up to Phinney's Cove and I'll lend you my copy.

You'll be glad you went to the trouble.

* * *

I've been getting one or two complaints lately that there are too many raves in this column (*nobody* complains about the hatchet jobs; bloodthirsty bunch, aren't you?): people seem to think that if I like a lotta books, I must have no taste. These people will continue to be disappointed for at least four pages yet—with two raves behind me, I'm nowhere near done with praising yet. I call 'em like I see 'em, and it happens that this month past has been a good one indeed, and the next specimen, too, deserve an unqualified rave.

Harlan Ellison's new album, titled (with characteristic modesty) *Harlan!*, is *not only* the only thing I know with an exclamation point in the title that's any damn good, it is also the finest spoken-word recording I've ever heard, both in content and in delivery.

It contains unabridged readings of "'Repent, Harlequin!' said the Ticktockman" (wups, another exclamation point—and this one won a Hugo *and* a Nebula) and "Shatterday" (1976 Nebula finalist) by Harlan himself, complete with sound effects, *plus* a superb jacket-painting by the Dillons, with liner notes by Isaac Asimov. If you're unfamiliar with either story, they're giants; and if you've never heard Harlan read his stuff, boy are you in for a treat. They actually come off *better* than they do on paper.

What else can I say? Oh yeah, Alternate Worlds Recordings' address is 148 East 74th Street, New York NY 10021, and I'm afraid I don't know how much they charge—I heard a guess of $6.50. In addition to the R. E. Howard and Leiber records I reviewed last month, they have a Robert Bloch upcoming, and a Bloch/Ellison "Jack The Ripper" planned.

* * *

I've established a precedent of reviewing science fact books in this column, when they seemed sufficiently significant or interesting (read: when I got a review copy, and liked it). So I'd like to direct your attention to at least two books by a writer named John McPhee.

McPhee's kind of writing is called "reportage," as you might expect from a staffer for *The New Yorker*—but I'm certain the term will mislead you. For this man is a

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superb stylist, a writer who makes world-class story-telling look as effortless as an Astaire solo. But what he *does* with his writing is report on stuff, and the two books herein considered, *The Curve of Binding Energy* and *The Deltoid Pumpkin Seed*, are reportage of events and people of intense interest to the serious and thoughtful science fiction writer or reader; they are fluidly readable documentation of a *state of mind* without which "science fiction" would be a meaningless term with no referent: what Robert Persig, in *Zen and the Art of Motorcycle Maintenance* calls the "classical mode of thought," perception of the underlying form rather than the object itself. What us kneejerk sf enthusiasts call "a technological orientation."

These books are, in short, about mad geniuses (genii?), visionaries. *Pumpkin Seed* is about a group of them, who worked (more or less) together in secret frenzy for twelve years to build a rigid airship—a practical dirigible—designed by a computer. *Binding Energy* is about a successful visionary: Theodore B. Taylor, designer of the world's largest and smallest hydrogen bombs (*size* measurement, not megatonnage) and the first man in history to light a cigarette with a hydrogen bomb. Neither book is *near* as narrow in scope as these thumbnail descriptions imply: *Seed* is really about Realization of Dream as a concept, and *Energy* focuses on Taylor's determined campaign to tighten up nuclear-materials security (he and McPhee went around breaking into and out of government plutonium repositories in their street clothes; they both have a disturbing habit of describing the amounts they could have stolen in terms of what fraction thereof would annihilate the World Trade Center.). Both books are absorbing, informative and fluent, and I recommend them unreservedly. I understand Ballantine has a paperback of *Energy* out, but I haven't seen it and so can't give you the vital statistics—take my word, they're each worth hardback prices. Remarkable books, by a truly remarkable writer.

* * *

Goddam, it's like drowning in whiskey—I can't seem to get this silly grin off my face. Remember last month, when I reviewed Frazetta and Fabian together and said that Fabian didn't suffer much by comparison with the master? Well, I'm doing it again this month, only *this* time *Frazetta* suffers by comparison with *Fabian*.

Okay, lemme 'splain. If Frazetta ever drew or painted a *bad* lick, he kept it in his briefcase, agreed. But this collection comprises a few major and many minor works (and I mean *doodles* in some cases), all reproduced in black and white with only mediocre accuracy on fair paper in 8½ X 11 "comic" format

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and *nowhere on it is the publisher identified*. (No, this is *not* therefore a pointless review—I saw copies in Bakka, so you *can* obtain it.) Nor is there a price quoted—the huckster at Trawnacon was asking $6.50, but I bartered instead. It does contain an (apparently) complete checklist of everything Frazetta ever published, but these works are named, not identified: there's no clue as to where or how or from whom to obtain them. (If any of you know, I'd love to find out.)

Now understand, there's some dandy stuff in Treasure: it contains some of Frazetta's most . . . er . . . sensuous (read: doity) work, and it was interesting to see that the Frazetta poster for a movie called *Luana* (apparently based on a book by Alan Dean Foster) is Frank's own classic painting "Sun Goddess" with the addition of a chimpanzee, a Negro with a rifle, and a wholly uncalled-for bra on the Goddess herself. I found the book worth swapping an original Callahan's manuscript for, and I'm glad I've got it.

But if you only have a few bucks to spend on sf art this month (or year), you'd be much better advised to lay out an extra $1.50 for Stephen Fabian's stupendous folio, *Fantastic Nudes*.

At eight clams, this is clearly the steal of the year, whether your motives are aesthetic or prurient. It is an outsized (14 X 11) *unbound* folio (no staples to remove) containing ten black-and-white plates and two cover drawings, each a triumph of painstaking repro, each prominently featuring a lady with no clothes on. They are all, singly and together, heartbreakingly beautiful. Each character is taken from some fantasy classic (Howard, Merritt, Smith, etc.), "not . . . to picture actual scenes . . . but . . . (as) a springboard for Fabian's talents on some stories of yesteryear that he might not normally have had a chance to illustrate." To Gerry and Helen de la Ree, who apparently conceived this splendid idea, my heartiest thanks and good wishes. You can order *Fantastic Nudes* from them at 7 Cedarwood Lane, Saddle River NJ 07458. They still have some Finlay and Bok in Stok, too, but surely nothing as fine as this? (Canada Customs held *F.N.* up for two full weeks, on the flimsy excuse that, being unbound, it did not constitute a "book" and therefore wasn't "bonafide review material"—they were kind enough not to wrinkle the pages, at least).

But be sure and place a basin full of tepid saline solution on your lap before you unwrap this folio: it'll knock your eyes out.

Before I leave Fabian, I must also mention a curious and appealing series-publication from Pyramid called *Fiction Illustrated*. I missed Volume One, something called *Schlomo Raven* (?), but when I saw Fabian's name on the cover of Volume Two, *Starfawn*, I snatched it at

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once. (Nearly got busted for shoplifting.) I was not disappointed . . . much.

Starfawn is a thorough blending of sf and the graphic story format. It is a full length science fiction novella, told in "comic book" mode, lovingly illustrated in full gorgeous color and printed up in paperback or pulp size (at 6 3/4 x 5, it is either/neither, and can be found on either shelf at the whim of the drugstore owner). The novella was written by Byron Preiss (editor of the *Weird Heroes* series, about which more next month), who apparently produced the whole affair. Fabian did the pencils and "technical consultant" work, the justly-famed Marie Severin did the coloring, and Annatte Kawecki handled "calligraphy"—what a low-life comic-book would call "lettering."

So. Four aspects to cover. Well, Preiss's story is not what I'd call first-rate sf. Way too many named characters (12), of whom only two are ever really developed (one of the insignificant ones is named "Bova"), and a plot so torturously complex and jargonful that I simply can't tell you if it makes any sense at all—but still no worse than your average Marvel comic or one of the bad Star Treks. Fabian's illos are somewhat hurried looking, a trifle sloppy in spots; but hell, there are *hundreds* of 'em, and the bulk of 'em are just great, with that trippy quality Steve does so well. Kawecki's lettering manages to make visual sense out of some extremely cluttered dialogue, and Severlin's *extremely* careful and subtle coloring job (miles ahead of what comics usually bother with) is what, in the final analysis, made the book (at least for me). She has a gentle, mescaline-y way with color that perfectly sets off Fabian's B&W style; I fervently hope they collaborate some more. Lots more.

* * *

Okay. So far this month we've given you a smash novel, a smash collection, a smash record (not to be confused with Smash Records, Inc.), two smash science fact books and a buncha smash artwork. Are we done with ringing the changes on a normal, sane book review column?

NO.

Hell, no, in fact: here's a double twist. A *guest* review, by my neighbor and eleven-year friend, Anne Trudell . . . of a book of science fiction *Poetry*. I frankly don't feel qualified to judge poetry (despite seven years as an English major), and back when Annie had time to write the stuff she was damn good, so . . .

* * *

The honorable Spider got waylaid on Song Three of this poetry opus (*Aniara*, by Harry Martinson), so he decided to pass it on to me on the

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off chance that my dabbling in *vers* serious of several years ago might enable me to wade through it better than he.

And wade I did, through about the first fifteen Songs, wondering how anything so heavy and clay-footed could be about the ethereal mysteries of Space and men's souls. I didn't know whether to blame it on the author or the translators (it being from the Swedish); or had my spirit of poesy simply deserted me?

But by about Song Twenty things were looking better, and after that it was free flight. After I finished the book, I went back to the first fifteen songs, and yup, they were heavy and clay-footed. Maybe it was a device of the author's to give contrast, but it is Pyrrhic in effect: people who would be interested in *Aniara* because of its science-fictional character (its framework is the voyage-without-conceivable-end of a spaceship loaded with emigrants, that gets diverted off-course and finds itself shooting for the constellation Lyra, with no turning back) would find themselves shelving it with a "Yecch" by about the Sixth Song at most—and many a person who would be interested in it for its poetry would shelve it with a "This is poetry?" by maybe the Tenth Song.

But there are about a hundred and two Songs altogether and the last eighty are just fine, really bringing home to you the effects of despair on the human spirit, and some realization of how vast space really is—so much so that one can say perhaps the underlying premise of Samuel Delany's "Star-Pit" isn't so far fetched after all but contains a grain of bitter truth: man's spirit may not be built for the enormity of intergalactic distances.

To this (me again) I can only add that *Aniara* is the latest in Avon's excellent "SF Rediscovery" series, and has a lovely cover by an unfortunately uncredited artist.

* * *

Me again.

I liked Buzz Busby's first two Barton books (*To Cage A Man* and *The Proud Enemy*) considerable, and said so in print, and so Buzz wrote me a thank you letter (note to you other ingrate bums; the only one I've received this year) and tipped me to the existence of *Rissa Kerguelen*, his newest and most ambitious work. "I really went overboard this time," Buzz wrote,"—more than 100 names, onstage characters in 266,000 words covering 4 planets and 103 years. But I vow and promise—*Dhalgren* it ain't." As a single volume it would have run about 640 pages.

So the cost of paper being what it is, Berkley decided to approximately bisect the thing—the last, oh, third of *Rissa Kergulen* will have been released by the time you read this, under the title *The Long View*, but I haven't read it as of this

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writing. What I have read is the two thirds of Rissa's story that has her name as title, and if you bear in mind that it was never intended to end where it does, it is one helluva book.

Rissa is certainly the strongest heroine ever created by a male sf writer, and may be one of the strongest ever: she makes Jirel of Joiry seem merely competent and somewhat lacking in ambition. The future universe she inhabits seems largely as uncaring and oppressive and sexist as the one we live in—but Rissa manages to bend it to her will, compromising only when and for as long as she must, pursuing her goals with quiet, dogged ferocity. She is what we might call, in the interests of semantic precision, "tough fatha"—not tough in the Spillanian sense, but tough-*minded*, in the Heinleinian sense. And for this tough fatha, Busby creates a tough motha: a Pirage King, salty enough to be her equal—and the way Busby tells it, their marriage works splendidly, on a basis of solid mutual respect (something so rare in sf that the only example I can call to mind is the Randall/Craig marriage in Heinlein's *The Unpleasant Profession of Jonathan Hoag*).

On the basis of this first volume, I'm prepared to recommend the whole two-book saga. Buzz has built so well that it would take a monumental-fiasco of an ending to spoil it now. I'll confirm it when *Long View* arrives, but as of now this book, too, is a strong Hugo contender for my money.

Ohyez—according to Buzz, the eventual Berkley paperback will be just the one gigantic volume, uncut and discrete. Start making a *large* space in your bookshelf.

* * *

By god, a non-sf book in the *Bookshelf*.

Well, it is and it isn't. *The Multiple Man* satisfies all the definitions of sf I ever heard of, but it isn't being billed as such: Bobbs-Merrill is advertising it as "A Novel of Suspense," and the overleaf copy tersely notes that "Ben Bova has many fine novels to his credit. He has also written some two dozen science books for the layman. He is editor of *Analog Magazine*." A layman, someone who does not know what sort of stuff *Analog* prints, will never suspect upon reading this that he is about to read a science fiction book.

And I understand how come. A true blue sf fan, or even a washy powder-blue one, will look at the flyleaf description of the premise and say at once, "Cripes, what's the big mystery? *Ob*viously the President's a clone." And, feeling that his or her intelligence has been slighted, he or she will put the book down unread. Which would be a hell of a shame, because it's a fine book.

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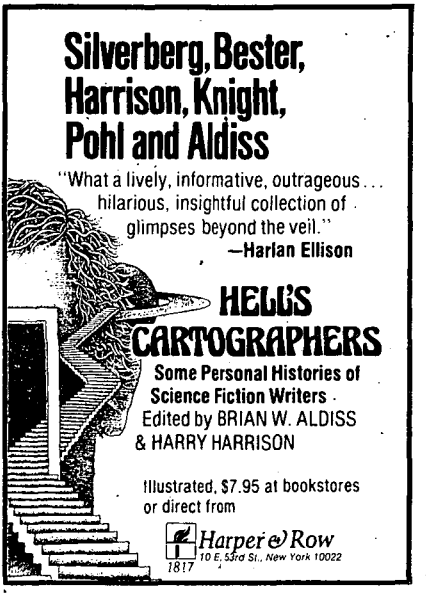
So pretend you're a Mainstream reader, and that you don't know what the Big Secret is. Put yourself in the place of the first-person narrator—who is *not* an sf fan—and follow him through his dilemma: he is the Press Secretary to the President of the United States, and two exact doubles of the President have been found—both as dead as mackerels. Consider the notion of a President who has something for everyone—because he is in fact eight different experts who happen to be genetically identical. Ponder the morality and ethics of that. Consider the difficulty of determining *which one* of these utterly identical men has begun murdering his clone-brothers—without allowing this potential dynamite to leak into the papers. Suppose that *you* are this Press Secretary, someone to whom "cloning" has been until now a concept filed in the Sunday Supplement Stuff drawer in your memory—and suppose further that you are a highly moral man, deeply aware of the conflict in your loyalties to your President and to your country—hell, to your species. What do you do?

Why, you become only one of a bunch of finely drawn and warmly *real* characters in a deftly-plotted and fast-paced novel of suspense—which quite incidentally happens to be a science fiction novel, if only because it hasn't happened yet.

Has it?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* * *

One last lump before I degenerate into minireviews: a book by John Boyd.

In reviewing Boyd's uneven but hilarious *Andromeda Gun* several months ago (March 1976 *Bookshelf*), I mentioned that I'd never heard of him before. So two brothers (both writers) from San Diego, Steven L. and John F. Carr, mailed me some of Boyd's books. I haven't had a chance to read *Pollinators of Eden* or *The Organ Bank Farm* yet, but you'll hear from me when I do; right now we're talking about *The Last Starship From Earth*, a 1968 paperback.

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And this one too is slightly uneven and entirely hilarious, with some breathtaking twists. It's a peculiar kind of plot: it requires suspension of a massive amount of disbelief, which is okay for a deliberately whacky book—and yet, Boyd plays it with just enough of a straight face to keep you from approaching it the way you would another whacky book, say, a Sheckley or a Goulart (Boyd is *much* funnier than Goulart). If you don't know Boyd, you might decide on page 20 that "this whole thing is absurd" without realizing that it's *meant* to be: his pan is just a bit *too* dead.

So forewarned, though, you ought to find *Starship* delightful, with a rigorously consistent internal logic that doesn't really become apparent until the very last chapter. Arthur Clarke's cover blurb calls it "a fascinating sf novel—one of the most convincing I've ever encountered." I don't know if I'd go *that* far—but granted some demented premises, it is pretty convincing. And the surprise ending (which explains many seeming inconsistencies) worked for me: I didn't guess. Well, I suspected, but . . .

As of this writing I'm one chapter into *Pollinators*, which so far looks like Light Sex Comedy Meets Science Fiction; more next month. Meanwhile, thank you Steve and John for passing along such a subtly funny book: to paraphrase an old sexist joke, it's nice to know that *some* Carrs break *up*.

* * *

On to the minis:

Run, Come See Jerusalem has exactly the same surprise ending as *Starship*, but I guessed it on page one—and I read Meredith's book first. I found *Jerusalem* a bit overwritten; but the characterization was just fine, and the background was satisfyingly inventive. Overall a pretty fair read—and if Meredith learns how to edit himself, we may all be hearing much more of him by and by.

Stargate: this book, apparently, began the "stargate" fad in sf—I've seen ten dozen stargate stories lately, and I just wrote one myself (called "Tin Ear"). Robinett's book is as daffy, fastpaced and stylistically brilliant as the *Analog* serialization was, and you'll like it. For awhile now I've been saying, half in fun, that "I just don't like Robinett stories as much as I liked Tak Hallus stories" (Stephen's former pseudonym—means "pen-name" in Arabic). But changing the name didn't hurt this book any. How the hell did Robinett/Hallus miss winning a John W. Campbell Award?

The Moon Is A Harsh Mistress: to praise Taj Mahal may be a kind of arrogance—but my truthful word, this book is finest historical novel ever written (who cares if history hasn't happened yet?), contains

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some of most delightful characters anywhen, pulls off plot miracles with no huhu, and (as always) did have me thinking in Loonie (instead of clumsy American) for days after this third re-reading. Possibly Heinlein's most perfect novel—certainly dinkum book in any case. First and perhaps only *believable* aware-computer in all sf. Seminal study of the inevitable marriage of technology and revolutionary Warfare. That cobber Heinlein has bolshoyeh imagination, nyet?

The Light Fantastic: a recollection of some of Alfred Bester's finest short fiction: "Fondly Fahrenheit" (with author's commentary); "5,271,009"; ". . . Champagne Bottle"; "Four-Hour Fugue"; "The Men Who Murdered Mohammed"; "Disappearing Act" —all classics—plus a huge 35,00-word novella called "Hell Is Forever," which ran in *Unknown* in '42 and ain't been seen since. It serves to prove that Alfie has *always* been both raving mad and a genius. There are delightful Besterian intros to each story, and "5,271,009" is one of my alltimefaves.

Ancient, My Enemy: a spectacular collection of incredibly varied stories by an Old Master, in paperback at long last—what more can I say? Well, I could say that the true breadth and depth of Gordy's talent are nowhere better displayed: if you think he's "a guy that writes Dorsai stories," buy this book and get hip. Gordy consistently scratches my mind where it itches.

In the Problem Pit: not much to say about this either, except that it's about 140% on the Spider Scale: the title story is one of the best novelettes in recent years, at least five others are genuine masterpieces and there are two overwhelmingly excellent essays included. Fred says in his intro that he has written some bad stories; they must have gotten lost in the mail. I've certainly never seen one.

There you go: an entire oversized column of disgustingly fulsome and fatuous praise—all of it utterly deserved. The law of averages dictated that *someday* I'd get a golden month: this has been it.

Or have I just gone soft?

I don't think so. This column is still (and will remain) Spider Versus The Hax of Sol III—but I'm taking advantage of a lull in the battle to identify some of my allies for you.

The general-issue run of sf releases will just have to pile up for a couple of months: I have two theme-columns coming up. Next month, a whole column devoted to recent sf by women—which I'm really looking forward to—next, a half column or so (more if more books show up meantime) on the Pyramid Harlan Ellison explosion. If that don't keep you on the edge of your seat, your fanny must be greased.

Stick around—things are looking up. ★

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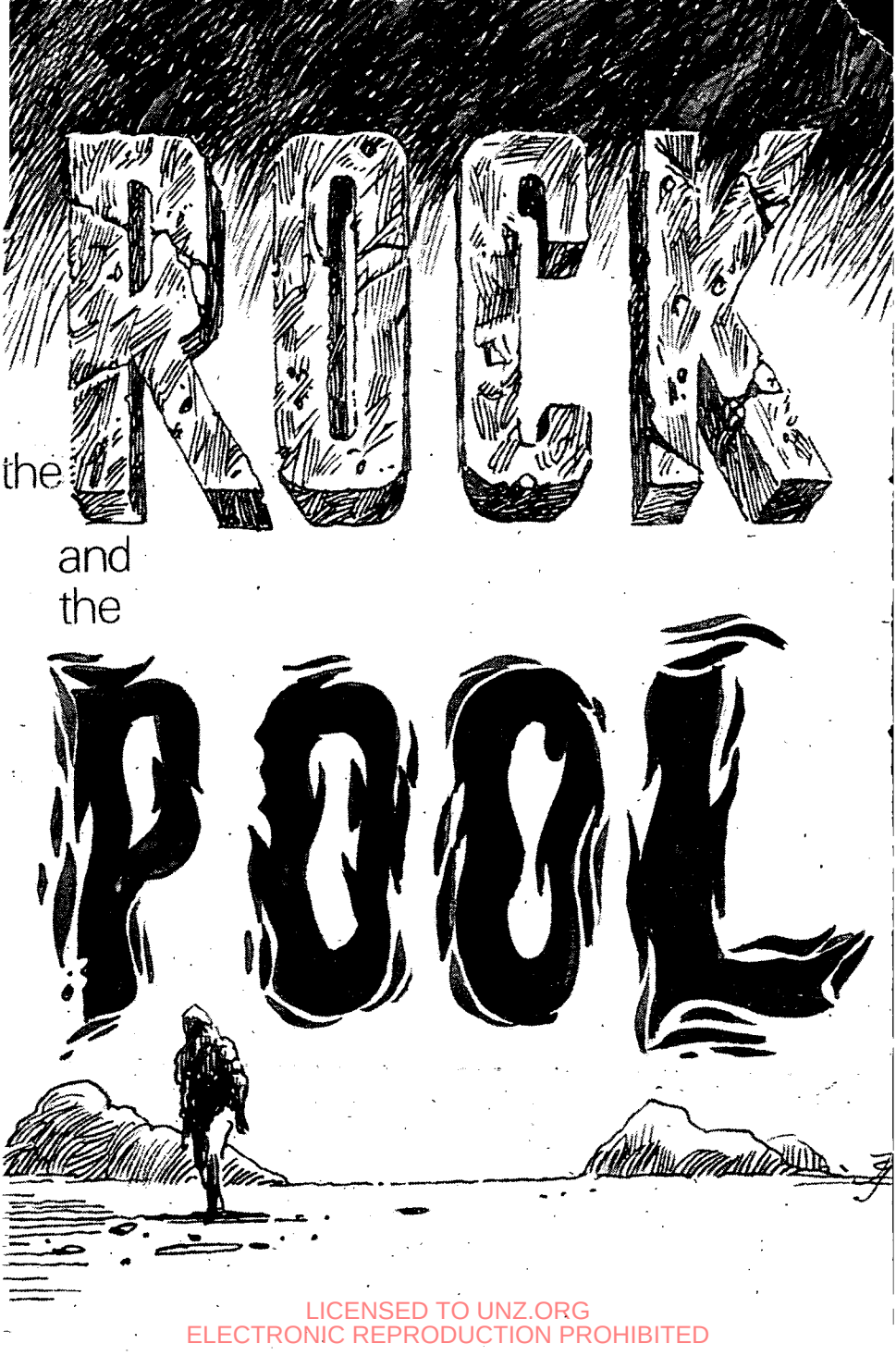

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The Rock and the Pool were all they had, all they needed, all they *wanted*. Except for one. . .

THE FOOD CAME from the rock. It came out in drops and in frothy bubbles, which burst and slowly dried into thin nutritious scales. When chewed these softened readily, and became a sweet liquid in the mouth. Their flavor was made more pleasant by hunger, for there was no other food. There never had been.

There were several ways to prepare the food. Usually it was placed in bowls, and clear water was poured over it. This mixture became a pinkish, cloudy fluid with an exciting odor. Its taste was delicious. It was a pleasant thing to fill bowls with the food, set them about on small boulders, and eat in friendly companionship. After food it was good to drink water together, a bowlful for each. Then everyone was satisfied, and life could go on.

The water came from the Pool. It was a large Pool, and the water in it was continually renewed. How this happened was never clear, for none flowed into it, and none fell from above, out of the cloudless sky. There were stories that water had once fallen thus, but they were nonsense. Water came only from the Pool. And there was only one Pool.

From the Pool and the Rock the flatland stretched away into limitless distance in all directions. Legend said that there was no end to it; that it went on and on forever. How such knowledge could be was not understood, for no one could travel out across the barren distance. There was no water and no food. So, only by the Pool and the Rock was there life.

And yet, far away across that empty space, there was Something. Sometimes, toward the end of the day, when the yellow light no longer beat down, but instead made the boulders cast long shadows across the warm sand, faint dark masses seemed to lie where the sky met the land.

The Big Little One knew nothing of such things, but he was soon to learn. From the time he first could scurry from under the shelving rock where his mother had her burrow, the cool, dark friendly space she called 'home', he was endlessly curious. The world was pleasant. The warm sand, when the light was fading, had a clean smell. And nothing could be finer than the freshness of the air when the Pool was approached. Of course, he early learned that this was not allowed. There were always watchers at the Pool. Only adults could go near.

He quickly understood that water was precious. Even before he ceased to feed from his mother's body, he was given a bowl, and his

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mother might dip it once for him at each time of eating, just as she dipped her larger bowl twice for herself. One bowl she poured over the food from the Rock; the other she drank when neighbors came from their own burrows, carrying their own bowls. They sat in the cooling shadows, sipping water, and having simple speech about the pleasantness of the world.

He listened, bright-eyed, and agreed. Life was good. But never could he enjoy it quietly. Even before he rose and walked upright, he would scurry about on all fours, from shade spot to shade spot, and into other burrows, for which he was always promptly and gently removed by the owners.

He learned, but he did not agree with what he learned. He did not understand why there were restrictions. He saw no reason why he should not approach the Rock and the Pool.

"One bowl of water is good," he told his mother. "Why can't I have two? I could always drink more."

"No one drinks more than one bowl," his mother explained. "It has never been done. That way, there is always enough."

"It is a big Pool," he persisted. "It is never empty."

"That is because no one drinks more than one bowl."

He looked at his mother, tiny, wizened, gentle, with dull placid eyes and little shriveled hands. And he had a new thought.

"If you had drunk more than one bowl, you would be larger." he said.

This seemed to puzzle her.

"I would not want to be larger," she said at last. "Home would be too small. My neighbors would not like it."

"If they had drunk more than one bowl, they would be larger too."

Her small thin face showed mild alarm.

"Then the Pool would soon be empty. There would be no food. We would all die."

"There is food higher on the Rock than anyone can reach. If you were larger, you could reach higher."

"But—"

He could see that his thought confused and disturbed her. He twisted his small face, patted her with a still baby hand, and said with a wisdom far beyond his brief life:

"I am wrong. You are right. One bowl of water is enough."

But he did not for a minute change his mind. And he did not speak his thoughts to any other adult. Instead, he acted.

There were always watchers at the Pool, but they did not watch very closely. There really was no reason to watch. No one thought of breaking custom. The water was life. As his mother had said, no one ever drank more than one bowl.

At the Rock, too, there were watchers. For each time of eating,

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each adult might scale off a bowlful of food. There were three of these times of eating during each time of light. No one ate or drank during the dark time.

But they did enjoy the little space when the light changed to dark, and the tiny bright points slowly came into view in the sky overhead. Then came the coolness, and sometimes a gentle wind. Everyone sat at the mouths of burrows, sat quietly and talked softly, and remembered again the refreshing bowl of water each had drunk.

He sat with his mother. But he could not sit still for long. He played about on the cooling sand, scampering here and there, trying to coax other young to scamper with him. But a word from their parents, and other small ones sat obediently. Only he went farther and farther out into the pleasant-scented dark.

There was a reason for this wandering. Every day he remembered the thought that he had had. It was no accident that his wandering took him closer and closer to the Pool. And he learned that when he went softly no one noticed him at all.

The dark was not really dark. The many bright points overhead caused a gentle glow, and when the big light came, as it often did, he could see far out across the sand. The Pool would glitter, and the dark bulk of the Rock would show clearly.

"The little lights are stars," his mother said. "They have always been there, just as the sand and the Rock and the Pool have always been here."

"The big light is not always there. Sometimes it comes, sometimes it does not. What is it?"

"I only know that it is called the Moon."

"Why should it be called the Moon? Why is it there? I want to know more about these things."

"How?" His mother smiled gently at her different, puzzling son. "It is not possible. It is better to sit and enjoy the coolness, and to remember the water you have drunk."

He did not ask more. It disturbed his mother. But the things that he did not know came again and again into his mind. And he saw no reason why one bowl of water should be enough.

One night, when there was no Moon, he reached the Pool. The light was dim. His little feet made no sound in the fine sand. He could see a watcher sitting, a slumped, shadowy shape. And, when he listened carefully, he could hear soft bubbling snores.

The water felt cool when he thrust in a small hand. The air around the Pool held a grateful chill. He wished for his bowl, so that he might drink. When he raised his wet hand, it dripped. Drops clung to the fingers. With sudden understanding, he licked them off, then thrust in his hand again. He did not need a bowl to drink water.

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Again and again he licked his fingers. The water was delicious. And he soon found that he could curve his fingers, hold them together, and dip out water as though his hand were a small bowl. He drank until he was satisfied. For the first time in his brief life he had enough. As he slipped back past the sleeping watcher, he knew that he would come again—and then again. He did not believe that one small being could cause any change in the Pool.

With the extra water, he slept deeply. When he woke, the world seemed brighter than it ever had before. He was always busy, but this light time he was busier than ever. His mother watched him with mild amazement. But she was proud. No burrow in the living world, in all the space around the Rock and the Pool, had such an active, bright-eyed son.

The bowl of food seemed very small. He drank the mixture his mother had made, sipping it slowly, and savoring every mouthful. His little rudimentary teeth crunched on clinging flakes of the sweet stuff that his mother had placed in the water. He didn't know that it had been hundreds of generations since those teeth had been needed. Always, so far as anyone knew, there had been only the food from the Rock and the water from the Pool.

"I would like more food," he told his mother.

"You have had your bowlful. It is the amount all young of your birth time have eaten. No one ever has more."

"You could go again to the Rock. There is more there."

"There would not be, if all had more than one bowl."

"But I don't speak of more for everyone. Only me."

His mother regarded him with complete astonishment. Her tiny figure, always so frail and bent, straightened. Her little eyes glowed. Her soft voice was almost stern as she said:

"What is right for one is right for all. That has always been true. Never forget that, my son. And that is why each has only one bowl."

He would have liked to talk more about these things. He knew that all of the food on the Rock was never eaten. Much of it was too high for even the tallest adult to reach. Occasionally a great scale of it fell from above, and, when broken up with a stone, was enough to fill many bowls. This he knew, for his mother had told him. But even then no one had more than one bowl. It wasn't done.

So he said, "Yes, mother," and went out to play in the shadows thrown by the scattered boulders. No one stayed long in the hot rays of the sun. But he knew what he would do. What was possible at the Pool would be possible at the Rock. The watching would be no better. And, with the coming of the dark time, he proved it.

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It was easy to pull the small flat scales of food from the Rock with his slender fingers. There was no water, so he crunched them with his barely emergent teeth. It seemed to him that he had never before known sweetness.

He ate slowly, and did not pull all the scales from one spot. He noticed that when he removed the food, the Rock underneath was rough and wet. The wetness had the sweetness and the taste of the food when he licked it from his fingers. When he had eaten, eaten more than in all his life before, the need for water became very great. He circled the Rock, kept to the darkest shadows, and came to the Pool and drank.

All night his small belly roiled and pained, and his dreams made him cry out. Not enough food was not good, but too much food was no better. He learned a great deal that night. At the first time of eating of the new day, he would not take his bowl.

"You eat it," he told his mother. "I will only have the water."

That certainly had never happened before. She worried and fussed over him, while he still lay on his little bed of fibers against the cool wall. But by the second time of eating he took his bowl of food again, and then ran out to play in the boulder shadows.

* * *

He grew. It seemed to him that his mother was becoming smaller and smaller. Home was shrinking. His bed was soon too short and where once he could walk into the burrow's opening, now he had to crawl again. It was bewildering, and after he had noticed it, he thought and brooded about it.

Then he knew. All these things were not becoming smaller. He was getting bigger. Much bigger. He was growing, and growing very fast. And when he thought, he knew why. Each night now, each time of darkness, he stayed for long outside the burrow. He told his mother that he liked to watch the stars. Then, when all was quiet, he made his nightly visit to the Rock and to the Pool.

He had learned to eat sparingly. He drank only enough water to make the food feel good inside him. But while every other individual had three sparse bowlfuls of food each light period and a bowl of water after each, he had four times of eating, and at the last one he got all his growing body needed. Of all the beings in the world, only he got enough to eat.

During the time of the Moon it was harder. Then there was light all during the star time, and he had to be very careful. There was always a chance that one of the watchers would waken. But none ever did. There had not really been a need for watchers for generations. So they slept soundly.

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Then came the day of the strange happening. The oldest adult had never seen its like, though there were stories, dim ancestral memories, of a time when such things often occurred. Then the world had been a different place, and each one had had all the water he wanted or required.

It had been a time of unusual brightness, of great heat. It was not comfortable to play in the boulder shadows. He lay panting in the burrow mouth, for there was not even a hot breeze sweeping across the shimmering sand. He thought longingly of a cool bowl of water. The Pool was out there, in plain sight, the water glistening in the hot sunshine. Every being had need of drink. But no one even thought of taking water yet. Custom could not be broken. The next bowl of water was not allowed until the light began to fade.

Quite suddenly the darkness came, but there were no stars. The brightness of the sky was covered over with strange, moving, rolling masses, sweeping lower and lower. Then the hot wind started, and it picked up the sand and blew it everywhere, so that it stung and burned, and filled noses and eyes. It was terrifying. His now tiny mother fled into the depths of the burrow, and lay trembling on her bed. But somehow it did not frighten him.

He crawled out of the burrow and stood tall, taller than the tallest adult, though he was still very young. He turned his back to the wind-driven, stinging sand. This was a new thing, and it seemed to him that everyone should be out, should be watching. But none were. Against the blowing sand and the dark masses overhead, only he moved.

Then the water fell. In the space of half a dozen breaths his skin was wet. All around him the sand turned dark. The wind no longer blew it. He stood, frightened now, and the water drenched him. It came down so thickly that he could not see the Pool, and the Rock was only an indistinct something through the driving drops. Even the sand could not drink it as fast as it came down. It ran in streamlets everywhere, carrying the sand, and washing paths for itself. And every depression in every glistening rock and boulder was filled to the brim.

"I may die," he told himself, "but I will not go in. This is something no being ever saw before. No one can even imagine too much water. But this is too much."

From the heat of the bright afternoon, the air was now chill. He, whose skin had never before been wet, shivered, and his tiny short teeth chattered. He really thought that he might die, but he stubbornly stayed and watched. He crouched behind a boulder near the burrow mouth, and there the wind was less. The rock was wet and cold.

The brief, vagrant desert storm actually lasted only a few minutes.

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He could not know how capriciously such storms struck, how little space they covered. He could not know that it was only chance that had kept them from this small spot for the length of the life span of many beings.

The dark clouds overhead drifted on. The sky brightened. Warmth came again. He stood in the hottest spot he could find, and quickly his skin dried. Everywhere thick steamy vapors rose from the wet sand.

Cautiously neighbors began to peer from burrow mouths.

"Come out," he called. "The world is wet. There is water for everyone, and to drink it will not make the Pool less."

He sipped rain water from a depression in a boulder. It was cold and good.

One by one, then in groups and families, the beings came out. They walked gingerly on the cool wet sand. They did not believe the water in the puddles and depressions. But as he had done, they dipped in fingers and tasted. There was no custom to tell them not to drink this water. So everyone drank until they all were full. Never before had each had all the water he wanted.

It was a passing thing. Quickly the hot sun dried the sand. One by one the puddles vanished. The water-filled depressions became simply wet spots on the rocks, and these soon went away. But it was wonderful while it lasted. In the twilights to come, all would remember and speak of the day when each one had had all the cool water he could drink.

* * *

When the light began to grow less each adult took his bowl and went to the Rock for food. Even though they were filled with water, they followed custom. Twilight was the day's last time of eating.

At first they did not understand what they found. With puzzlement they milled around the wet and shining Rock, lifting far higher into the hot air than the tallest boulder. For the first time in memory they could really see it, see the uneven porous sides of it, with little droplets oozing out and trickling downward here and there. So long had they gone through the motions of plucking the sweet scales from the Rock that some even tried it, though their eyes told them that there were none to pluck.

And finally, from one old female who carried two bowls, the wail of realization rang out:

"There is no food!"

While he was now larger than the largest adult, he was still a juvenile. He had not yet lived long enough to be allowed to carry his own bowl to the Rock and fill it. So his little mother carried his bowl, just as she had since he first had begun to eat. He stood far away with the small ones, waiting. From where he stood he could see that the Rock was dif-

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ferent. The scales no longer hung there in sweet clusters, building into large darkening chunks high on the Rock, where no being could reach. There were no scales at all. But the Rock still glistened with wetness, while all the boulders about, and the sand itself had long since dried.

His mother came back slowly with the empty bowls. She was stunned, mute, pathetic. Her world had collapsed. Water had fallen from the sky, and there was no longer food on the Rock.

"We will die," she whimpered. "I could get no food for you. There is none on the Rock. I do not understand, but I know we will die."

"We are not dead," he soothed her, "and we have had much water. Perhaps the water will be enough."

"No one can live without food," she said. "No one ever has."

"Get us water from the Pool," he suggested. "We have no food to pour it over, but we can sip it in the cool evening, when the stars show. It will be pleasant."

Unlike any other being in the colony around the Pool and the Rock, he was thinking. He had broken custom so often that he could better adjust to change. He was better nourished, and his thoughts were keener. He remembered what happened when water was poured over food.

"The food goes away," he told himself. "It becomes a part of the water, and the water grows sweet like the food."

He sat and studied the Rock, still glistening wet in the last rays of the sun.

"The water fell from the sky. Much water. It poured on the Rock, and on the food. The food became a part of the water, and the sand drank it as it flowed away. That is why there is no food on the Rock."

Late in the dark time, when all the hungry members of the colony were finally asleep, he crept from the burrow and made his now familiar way to the Rock. There was a soft star-glow. The Moon was a thin sliver low in the sky. He had other thoughts about the Rock, thoughts no other being had. He wondered where the food came from. When the scales were plucked, always more came in their places. Under the scales the Rock was always wet. And the water was sweet, like the sweetness of the food.

He remembered these things as he came to the Rock again. His mind ached with all the things he was thinking, with the effort to understand. He put a finger on the wet Rock, then put the wetness in his mouth. As always, it was sweet. But his probing hands felt something else, something far more exciting. All over the Rock small scales were growing. They were very thin, and broke if he touched them, but they were there all the same. And they tasted just as the food had always tasted. The food was coming back on the Rock! No

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one would starve after all.

He ate, picking the tiny scales carefully, working his way all around the Rock. He would have liked to take some to his mother, but he knew he could not. He was not supposed to go near the Rock at all. He was too young. And no one took food in the dark time. It wasn't done.

He had a drink from the Pool, then finally went back to his bed. Across the small cool room his mother whimpered softly as she slept. He thought harder than he ever had thought before.

"When I spill water on a stone, it soon goes away. The stone is dry again. Is the food a part of the water on the Rock? And when the water goes away, the food stays?"

He puzzled until his head ached, but just as he finally slipped into sleep, a more troublesome question drifted through his mind. "Why is the Rock always wet? Where does the water come from?"

He did not know that only one other being of all the colony had ever asked that question.

It had been two days. Two sun-times and two dark times for sleep. The food had come back to the Rock. The scales grew faster than the filled bowls could carry them away. Each being had his accustomed amount. He had even persuaded his mother to use a larger bowl for him, for she could see with her eyes that he needed it. And still there was more than enough.

"All should eat more," he told his mother. "There is more on the Rock, and no one ever really gets enough. It was pleasant when we had all the water we could drink."

But his mother shook her small head.

"It has never been done. One bowl is enough. That way we always have food."

"There is food high on the Rock that no one can reach. It could feed many more. There should be a way to gather it."

"There is no way. When the scales grow heavy and fall, then they can be eaten. This is the way it has always been."

His eyes gleamed.

"If I could think of a way to pick the scales higher up, would the neighbors agree? Why shouldn't they be picked?"

Again she shook her head, but she seemed bewildered. She loved her big son, but he was disturbing. No one had ever thought the things he thought.

"It has never been done. The way we do it is best, for we have always done it this way. And you are too young even to go near the Rock. I do not know why you are so large."

He might have insisted, but another strange happening caught his attention soon after the water fell from the sky. Most beings looked on with a dull wonder, but he was fascinated.

All around the burrows, and far

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and near over the bright hot land, tiny green things pushed their way up out of the sand. They did not move about, but like the scales of food on the Rock, they grew larger.

"What are they?" he asked his mother. "I have never seen them before. What do they do? Are they food?"

"I do not know what they are," his mother said. "I have never seen them either. But they are not food. Food comes only from the Rock. This we all know."

She hesitated. He could see that she wanted to say something more.

"Across the colony, far beyond the Rock, there is a boulder that shines red in the light. Under the shelving edge of the boulder there is a burrow. By it, in the boulder's shade, there will be sitting a Very Old One. His head hair will be long and shaggy, and it and everything about him will be gray. Ask him. He has lived a long time."

She was silent, but he knew she was not finished. And finally she added:

"Say that you have come from me, and that you are my son. I once knew him very well."

She had forgotten, or perhaps she didn't know, how widely he wandered and strayed as he played from one boulder shade to the next. And certainly she knew nothing of his stealthy prowling in the starshine, when all were supposed to be in their beds. He knew the red boulder well, and had often watched the slowmoving Old One as he sat in the shade, sometimes dozing, sometimes staring into the distance at nothing. He had been curious, too. In all the colony there was no one so slow and gray and wrinkled.

The green things speckled the sand, making a pleasing sight in the morning light. It was after the early food bowl, and he had had his water. He ran rapidly from shade to shade, pausing in each patch for a moment as he had been taught. Only thus could living beings move about in the hot light.

He could see the red boulder from far off. It was early, but already the oldster was sitting out against the stone, sitting quietly in the edge of the cool shadow. His wrinkled hands held an old, worn water bowl. The faded old eyes looked at him with an unexpected keenness when he darted into the Old One's shadow patch.

"You are the Large One," the Old One said. "I have heard much of you. And I have seen you in the distance."

"I like to play in many shadows. My mother says there is no harm in it, if I do not disturb other burrows. Do I disturb you?"

The ancient eyes regarded him tranquilly. The bowl was twirled slowly in the old fingers. It still held a little water. The Old One raised it, and took a satisfying sip.

"Nothing disturbs me. I have known everything, seen everything. Now it is good to sit, and watch the

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world, and sip a little water. —And to remember. I have many things to remember."

"My mother sent me. She said you would know her name."

The Old One nodded.

"I remember. She was the last. The last of many. She was a good being. She always followed the rules. She never asked why."

"Is it wrong to ask why?"

"Who is to say what is wrong? But to ask why is to think. Most beings do not wish to think. To think is to worry. And to worry is to be unhappy."

The young one sprawled in the shadow, on the cool sand. Even lying prone he could almost look the Old One in the eye.

"I always ask why," he said. It does not make me unhappy."

"You must have asked why you could not have more food. You could not have grown so large on only one bowl."

"My mother only gives me one bowl."

"I know." The old eyes were wise and cunning, and the wrinkled face shaped itself into a grin. "You are the shadow that creeps around the Rock in the starshine, when the watchers sleep. I sleep little, and I see much."

He did not deny. He could tell that the Old One did not disapprove. He suspected that, if he had thought of it when he was young, the Old One might have done as he had.

"All the food is never eaten," he said. "Others could have more than one bowl. When I am older, and may go to the Rock in the light, I can reach food no one now eats. I do not think it is wrong not to be hungry."

"There was a reason for the custom," the Old One said. "Perhaps it was not a good reason. But it has kept the colony alive. No one starves."

"If we could gather food all the way to the top of the Rock, everyone would have plenty. When the food is taken, more grows back. We should be able to reach it all."

"I have thought of that," the Old One admitted, "but there is no way. It was never meant to be."

"This is what my mother says. I cannot understand why. I will think of a way."

"You might. So far as I know you are the first to try."

The Old One leaned back against the stone. Suddenly he seemed tired. He sipped a few drops from the bowl.

"Why did your mother send you to me? Tell me, before I am too weary."

"The little green things. Nothing like them has ever happened before. She said you might know what they are."

The Old one nodded. His old eyes had a far-away look.

"Yes, I know. This is not the first time they have come. I have seen them twice in my lifetime.

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They come only after water falls from the sky. Then for a little while the sand is wet, and they grow out of it. I think they are alive."

"They cannot move. Only the wind blows them."

"Yet, somehow, they drink water. They get it from the sand, while it is still wet. Then they grow, a few light periods only, and colored parts, very pleasant to the eyes, come on their tops. After that they will turn brown and die."

"But—of what use are they?"

The Old One shrugged thin, scrawny shoulders.

"Of what use are we?"

That was a strange answer. He thought of it, while the Old One leaned back against the boulder and closed his eyes.

"Go now. I must sleep a little. And tell your mother I remember."

* * *

For the next few light periods he watched the green things. As the Old One had said, they grew rapidly. But they were still tiny and frail. The slightest wind bent them. And when he tried to take one out of the sand, it broke in his hands, and green juice came on his fingers. He tried to put it back into the sand, but in a little while it was only a dried brown wisp, and the wind blew it away.

The colored parts came, reds and pinks and yellows. Some were even white. For a brief while it was a most pleasant thing to look out across the hot sand and see the many bits of color all rippling in the wind. Then they faded, and the green things grew brown and died.

He was distressed.

"Will they ever come again?" He asked the Old One. After that first visit he came back again and again to the red boulder, and to the old gray being who sat in the shade that it made.

"They will come. But before they do the water must fall again from the sky. And as you know, this happens only once or twice in a being's lifetime. Live long, then, and perhaps you will see them again."

"Where do they come from? I have dug in the sand. There are none there. And how can they drink? They have no mouths."

The Old One's pale eyes looked at the big youngster with approval.

"You wish to know. That is good. Most beings do not care. All they wish is food from the Rock, water from the Pool, and, when they have grown, another being to share a burrow with them. There should be more than that."

"But how can I know, when no one knows? Even you do not know where the green things come from."

"You can look for yourself, as you have been doing. It is in my head, from something I knew long ago, that the green things grow from small pieces that are hard to

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see and that are mixed with the sand. I do not know where they came from. Perhaps you can discover. Then you can instruct *me*."

And it was because he followed that advice, and looked and sifted the sand, that he found the green thing that was just beginning to grow. It did not look like the others. It sat in the shade of a boulder for most of the light time, and so was not dried up by the sun's fierce rays. It lifted on a sturdy column, and spread flat green pieces on all sides of it. For a time it flourished. Then it, too, began to wilt.

He agonized.

"Why must it die? It has made no colored parts. It should live longer. It is pleasant to see it there, digging down into the sand, reaching up into the light. Why can't I help it?"

He thought long, sitting in boulder shade almost as quietly as the Old One himself. He remembered the Old One sipping water from his bowl, a few drops only, and being refreshed in the hot air. He thought again of how the green things had come only after the water had fallen, and of how short a time they had lived in the dry sand. Now this different green thing, larger than the others had ever grown, would die.

"If it still had water, it would not die. It is water that makes life go on."

And he knew how he could help. He knew what he would do.

When the light faded, after he and his mother had enjoyed their water in the cool shadows by the burrow entrance, he slipped away. The glow of starshine had become his favorite light. He spent more time out in it than any being had for many generations. Even though it was cooler, more pleasant, for some reason the dark time was for sleep. It was custom. And, until he came along, few beings failed to follow custom. What was done was best, because it had always been done that way.

He had not placed his water bowl back in the burrow. Now he went stealthily but swiftly to the Pool, and filled it to the brim. Carefully he carried it to the wilting green thing.

"Every living thing may have one bowl," he told himself. "This thing lives. It is right that it too should have one bowl."

He studied it once again in the dim light. He hesitated. He did not know how to give the water to it.

"It has no mouth. I do not understand how it drinks. But if I drop the water on it from above, that will be like the water falls from the sky. Perhaps it will help."

So, gently, drop by drop, he poured until the bowl was empty. The water ran off the flat green pieces, and the sand grew dark with wetness.

"It likes the wet sand. Now perhaps it will not die."

When the bright time came again,

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he could scarcely wait until the early bowl of food was finished. He ate with a rush. His small mother watched him with grave concern.

"You are not yet old enough," she said, "but I think your food bowl should be still bigger. An adult bowl. No being has ever been your size before, but it is only right that you should be fed. I will speak to the neighbors, for that is custom. But you shall have the bowl."

He did not tell her that his haste was not caused by hunger. She would not understand his concern about the green thing. And certainly it would not be well to say anything about the water. He ate enough in the dark time to satisfy his needs, but he would be glad of the larger bowl. Soon, he hoped, he would be permitted to gather his own food from the Rock.

So he finished his food more slowly, then sipped the water his mother brought. It was custom that he must sit quietly, enjoying, remembering, while his mother took her water. She sipped daintily, with long pauses, looking out toward the Rock and the Pool, and over the hot sand into the distance beyond. This was the world. This was what beings did, and his mother could not even imagine anything more. But finally she had the last drop. He was free to go and play in the boulder shadows.

The green thing was happier. The flat green pieces no longer drooped. It lifted its tip higher, and he fancied that it had grown during the star time. Around its base, where it emerged from the sand, the darkness of where he had spilled the water still showed. It was wet and cool to his probing fingers.

"It will live. If I give it water it will grow, and that will be very pleasant. I do not think so small an amount of water will harm the Pool."

There was no one to whom he could talk, no one who saw anything wonderful about this thing which had no use. No one, that is, except the Old One. And if he spoke to him, the wise wrinkled old being would know about the water. But perhaps that would not matter. Perhaps the Old One would not care. He might even think that this was a thing worth doing, though it was not custom.

The Old One sat in his boulder shade. He seemed older and more wrinkled than he ever had before. He lay against the rock, his eyes closed, his breath whispering drily through the thin lips. His water bowl rested on his knees. There was no water in it.

"It is a pleasant light time, Old One."

The eyelids fluttered. The voice was a thin rasp.

"Not for me. I am now too tired to enjoy, Large One."

The big juvenile looked at the dry bowl.

"You have had your water. It is not yet the hot-time. This is the best

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part of the time of waking."

The old eyes opened, but they seemed glazed and unseeing.

"I have had no water. Since the last light time I have not been able to walk to the Pool. My life is almost over."

He was deeply disturbed. He now knew what the Old One reminded him of. He was like the green thing, wilting and drying in the thirsty air. Soon he would grow brown, and blow away in the wind.

"But you must have your water! A bowl with food, a bowl to sip. Every being has this right."

The Old One smiled faintly.

"When the being no longer can go to the Pool and to the Rock, he dies. This is custom. Others, like you, grow up and drink the water."

The big young one rose to his feet, moving swiftly. No being in the colony was his equal for size and strength.

"Give me your bowl! I have broken custom often before, and I will bring you water. It is only right."

"You are not old enough to dip. The watchers will not allow it."

"I will show your bowl. They will know it is for you."

"Each being must dip his own bowl, unless he is still too young. This is custom. It has always been so. That way, the Pool always has water."

But the young one reached and took the bowl from the wrinkled, claw-like hand. The hand was as dry as sand.

"Soon you will have water," he promised, and darted for the next boulder shadow.

At the Pool he showed the bowl to the watcher.

"This is the Old One's bowl. He is dying because he has no water. I must dip for him."

"You are too young. Your mother still dips for you. The Old One must dip his own bowl. This has always been so."

"But he cannot walk. And without the water he will die."

"Everything dies," the watcher said.

The big young one raised himself to his full height. He looked down on the top of the head of the startled watcher.

"While we talk, the Old One dies. I will dip his bowl and take him water, because I am larger than you. That way, I will make a new custom."

He strode firmly down to the edge of the Pool, dipped the bowl, and filled it to the brim. Then, carrying carefully, he made his way from shadow to shadow back to the red boulder where the Old One lay. The watcher stared after him, but did nothing. Custom did not cover this situation. In his memory, nothing like it had ever happened before.

The large juvenile crouched beside the small shriveled figure of the Old One and held the bowl to his lips. The old fellow swallowed weakly, ran out his dry tongue.

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Then he clutched the bowl with eager hands and drank.

When the bowl was half emptied, the Old One lowered it carefully to his knees. Even in this time of weakness and dire necessity he did not spill a drop. He lay quietly for a few minutes. His breath no longer wheezed drily from his throat. When his eyes opened they were no longer glazed.

"This was not custom," he said. "Others are growing larger. If I live beyond my time, I am drinking their water. You have done a good thing, but you must let me die. I do not think I can ever go to the Pool again."

"There is plenty of water. When I dipped for you, I saw the Pool for the first time in the light. It is a single hollow in one great stone. Its edges are smooth and worn, but there is no rock like it anywhere around the colony. It is deep, and bubbles rise without stopping from its middle."

The Old One nodded.

"Like the food on the Rock, it replaces itself when we drink. I have long thought that it would be possible to have more than one bowl. But custom has always said one bowl. All beings think this. And we have had enough, and have stayed alive."

He squatted in the shadow beside the slight, thin figure, and thought. Then he said:

"In the starshine I have long had more than one bowl. And at the Rock I have eaten until I am filled. There is still much food no one can reach. There is always more water in the Pool. I think custom is wrong."

"You are only one, and it has made you large. If all ate and drank more, there might not be enough."

"We should use what there is. More will come. And I have wondered why."

The Old One settled back against his boulder. He sipped again from his bowl. He looked very old and tired, but he seemed content.

"I have waited for you. I also have asked why, but there was no way to know. Perhaps you will find one. When you are old, you will have more to remember than I do now."

The big young one rose.

"Give me your food bowl. I will fill it at the Rock. Each light time I will fill your bowls, and you can tell me all the things you have seen and done, and the thoughts you have had. When I am old I will tell these things to other young who ask why. And I will tell them your name, so they will know that you have lived."

The Old One sighed with pure pleasure.

"That will be a good exchange. I will enjoy it. But the neighbors will not understand. No young has ever filled an old one's bowls. It is not custom."

"When I dipped your water, we made a new custom. We can make

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more, because I am the biggest being in the colony. What we do will become what others should do. And you can make sure that what we do is wise."

The Old One sipped, and shook his head with wonder.

"I am glad to have lived so long. I will think the best thoughts that I can. When I die, I will die with content. And now, for a time, let me rest. Then I can take the food."

* * *

There was much quiet talk in the twilight times, neighbor to neighbor, while the last food bowl was eaten, the last water sipped. The talk was of the Large One, and how he gathered and carried the bowls of the Old One. Suddenly the big juvenile seemed young no longer. He had become a Force, ominous and different. He did not respect custom. Things were no longer as they had always been. His simple neighbors were frightened.

"Speak to your son," they told his mother. "A son always listens to his mother. Tell him that if we do not follow custom we will all die. The water and the food will be used up."

"I have spoken to him. He is kind, but he will not listen any more. He says that he makes new customs, and that they are better. He tells me to have two bowls of water, if one does not fill me. He says there will be enough."

"The Old One should have died. For him, it is time. He can only sit in the shadow; and your son brings him water. If he cannot dip for himself, it is not his water any longer. He is drinking the water of the small growing ones, and the new born."

The tiny wizened mother sipped her water. Secretly, she thought that it had never been more refreshing. This was *her son,* and the whole colony was speaking of him. Every being knew *her son.*

"He says that the Old One knows more than other beings. He says that he must listen to it all, so that nothing will be lost."

"Every being knows the Rock and the Pool, the light and the heat and the shadows, darkness and starshine. All know the pleasures of coolness and water, and companionship in the burrow, and talk with neighbors in the twilight. This is the world. There is nothing else to know."

"He speaks of the water falling from the sky, and where the green things come from, and why the Pool always has water. He says there is something else far across the sand that no being has ever seen. He says the Old One thinks of many things no one has thought before."

"These are mysteries. They cannot be known. And anyway, they have nothing to do with life. Our concern is only with enough food, enough water, and shelter from the

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heat. If these are taken away, we die. If we follow custom, we will always have them."

The little mother sipped from her bowl, and blinked her mild eyes.

"I will speak to him again, but I do not believe he will listen. He thinks his own thoughts. Also, he listens to the Old One, who remembers more than any other being. They do strange things, but they will not cause us to die."

She sipped again, crouched on the sand strip before her burrow entrance. She lifted her small head. She was the mother of the Large One, and she was proud.

The neighbors found nothing more to say.

* * *

At the flick of a switch the big screen lighted. Colors grew on it. The landscape it showed was an empty wasteland, a stark, lifeless expanse of sand and boulders on which the sun beat with a relentless intensity. Heat seemed to radiate from the screen.

The Professor shuddered. It was almost as if some ancestral memory stirred, and the heat was real, dessicating and shriveling the tissues, the very air stealing moisture from the lung linings at each breath. The Professor glanced away from the screen for a moment. Through the wide laboratory windows big spruces and firs spread cool, grateful shade. Behind them rose the peaks, some covered with new snow. The Professor took a deep breath of the pungent, spicy air.

From over the desk the entry gong sounded its deep tone. Three beats, a pause, one more beat. A student. A graduate student wishing a conference.

Although it was an important part of the chair she occupied, the Professor did not particularly enjoy the work with graduate students. It seemed to her that the quality deteriorated with each new hatching. They were all so ambitious, so earnest, so unimaginative—so *dull!* She preferred the clean, incisive path of her own research, uncluttered by bumbling and by straying off onto pointless bypaths. She enjoyed the smooth working of what was admittedly the best mind on the planet—her own.

Still, there was one student who almost seemed worth the trouble. He was mature. He thought well. He recognized the importance of background and context. He devised his own approaches, implemented them with imagination, analysed his data with insight. Yes, definitely a possibility. He wanted more than a doctorate. He wanted to know.

She glanced back at the screen. She knew that the picture on it was not chance. She was supervising a dozen projects, but this was the one most on her mind. And not, she admitted honestly, entirely because of the research itself. The Professor was at the height of her powers.

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Mentally, physically, she would never be better. She felt that she owed her race—and herself—something more than the classic monographs that set her apart from even the best in her field.

She was not sure which student waited outside the portal, but the gong had rung with a crisp precision. She thought she recognized the touch. So, even though this was the day she usually reserved for herself, she reached for the entry button. Then she paused. She swung a great mirror around before her couch and inspected herself critically.

She flared her blue, many-spined crest. She intensified the rosy red of her pulsing, graceful throat, polished an imaginary cloudy spot from a green breast-scale with a bit of fluff. Her almost lidless golden eyes softened. Her appearance was satisfactory. Perhaps it even matched the attractiveness of her brain.

She swung back the mirror, touched the entry button. When the portal opened she was sitting decorously on her couch, her tail coiled around the desk as it always was when she was working, gravely studying the stark beauty of the desert landscape on the screen.

She did not turn her head as he strode quickly across the laboratory. She could feel him as he loomed behind her, looking at the screen over her shoulder. Her nostrils fluttered briefly at the musky male aroma that came from him. But his concern was all for the screen.

"Professor," he said, "they are learning. Suddenly they are doing a number of new things. After these many months they are showing an intelligence I never suspected they had."

"Not all, I suspect."

"No, no, of course not. It's the big one. A mutant, probably. He's questioning. He's challenging every taboo pattern, every custom. And he's getting away with it simply because he's bigger. He's browbeating them."

She turned her golden eyes on him. Her long rows of white teeth gleamed, and her tail-tip vibrated rapidly. These were sympathetic gestures, the equivalent of an indulgent smile.

"No one solves problems without enthusiasm, Vibran, but I'm sure you know you're jumping to conclusions. It certainly isn't that simple. Whenever something changes, it is easy to cry mutation. You know it doesn't have to be that at all."

He bowed his great crested head, quivered his own tail-tip.

"Of course, Professor. I hypothesize too quickly. But you'll admit I withdraw most of them later. For me, they're a way of thinking."

"No fault. Take an exercise. Why else could the large one be large?"

His tail vibrated more rapidly

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than ever, and his white tusks showed magnificently. He was amused as he thought of the big one.

"Perhaps because he has been stealing food and water practically from the time he was hatched. He was hungry, and the taboo didn't stop him."

"They do not produce eggs. Be accurate."

"I'm sorry, Professor. Just a figure of speech. Anyway, he did eat at night, and grew. This stimulates a thought. Thank you, Professor. It could be that this is inherently a much bigger life form, dwarfed by many generations of barely subsistence diet."

"History confirms this. You have consulted the records. You recall why this race has been given special protection, special endangered species consideration, when many others have been allowed to become extinct."

The student lowered his great head. The brilliant blue of his throat column grew pale, and his tail-tip was limp. He was embarrassed.

"Professor, I apologize. I have been so fascinated by the dynamics of this problem, by observing the stylized mechanics of this colony, that I haven't researched the history of the species as I should have. I reasoned that I could do this later, when my data-gathering in the field was complete."

"Wrong sequence, and you know it," the Professor said severely. "Proper background preparation might well change the entire pattern of your observations. You usually do this so well. That is why I assigned this colony to you. It is one of three surviving on the planet, and they are all different. Each has its own protected habitat, where it is given minimal food and allowed to live as it will. None may be physically approached. All may be studied by remote methods. I have thought that our desert colony, in addition to being handy for observation, may well be the most rewarding of the three. I expect you to learn whatever it can teach us."

"Professor, I am ashamed. I will survey the records at once."

The Professor relented. She was secretly proud of the magnificent big student's confusion. She knew that he had a superior mind, and that he would complete a study more worthy than any other student she had ever had.

"Conference," she said abruptly. "Some guide lines."

"Recording." His response was automatic. He activated a small round recorder that hung on his broad chest.

"We maintain the remnants of this race in endangered species status because we owe our existence to them. Perhaps we are grateful to them. But, more pragmatically, we keep them before us as an ever-present reminder of the dangers inherent in too much knowledge."

"Dangers, Professor? Isn't that

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something of a paradox? The acquiring of knowledge is your life concern—and mine. I don't understand."

"Knowledge, of itself, is sterile. To have value, it must be utilized. It can be used with wisdom, or it can be used destructively. So knowledge without wisdom is dangerous."

"Logical. Certainly we are striving for wisdom as well as to know. But philosophy is based in fact. Without fact it would not be easy to be wise."

The Professor's white teeth flashed and her tail-tip quivered.

"Of course. Both are necessary. We strive for balance. And in this the species you are studying failed."

"I do not follow you. I should have reviewed the records."

"You will, in detail. Meanwhile, know this. Those little furtive creatures, living in burrows out of the desert heat, dependent for water on the pool fed by the pipeline we installed hundreds of years ago, their only food the carefully balanced diet in solution continually forced up through the porous rock, to crystallize when the water evaporates; those little creatures once dominated this planet."

The student's dark basilisk eyes glittered. His quivering tail-tip expressed both interest and amusement.

"An hypothesis, of course. Based, perhaps, on paleontological evidence of earlier wide-spread occurrence?"

"I did not mention hypothesis. This is something well-known, deeply studied, overwhelmingly verified. Like most students of the sciences, you are still narrowly educated. Make a note to audit a series of lectures on planet history. To deal with your problem species you require much more perspective."

"Noted. Professor, this is becoming a most helpful conference. I thank you. Will you discuss one more point?"

"Designate."

"How, possibly, could we owe our own existence to my little desert creatures? Is this a philosophical allusion?"

"No. Quite literal. You know that, some millions of years past—the exact time is not certain—the planet developed areas of great radioactivity. It was long before the cause was finally understood."

"Artificially produced, were they not? I am not entirely ignorant, Professor, though I may at times give that impression."

"I have hope for you," the Professor said drily, but with a pride her voice concealed rather poorly. "Artificially produced, as you say. Produced by a species that had reached a technological level we admire and despair of even today. Much of our knowledge has come from study of their artifacts."

"Of course." The big student nodded his crested head. "Men. I

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should have made the connection. But the relationship of all this to our own existence is still not clear to me."

"Quite simple. The radioactivity came in all instances from controlled atomic disintegration; incredible, unbelievable atomic blasts as warring factions of men destroyed each other, and very nearly decimated all other life on the planet. All creatures, all chlorophyll bearers that remained bore the scars of the unnatural strife. The effects of radiation on germ plasm are well understood. So imagine this entire world glowing with radioactivity! Imagine how life then changed over the millenia."

"I have an inkling. Of course our own race, like most stable species, developed as a result of the atomic wars. We are aware, in general, of the evolutionary trail we must have followed. Are you saying that it is now specifically known what we were before?"

"It is finally known. A brilliant summary has recently been recorded by a team of geneticists, paleontologists and Earth historians. I will give you the reference. Generally I do not find these cooperative ventures very competent, but this one is superior.

"I will review it immediately. Would you," he hesitated, "would you state their conciusions? Suddenly I have a tremendous need to know my own ancestors!"

The Professor flashed her rosy throat and gave an intimate significance to the quivering of her tail-tip. She knew, clearly and honestly, that her present concern, growing stronger all the while, was more with her immediate descendents.

"It seems that we are derived from a tiny species that made its home in the waste places of the planet; in the deserts." She gestured at the screen. "There is your ancestral home—and mine. We scurried about over the sands, fed on desert insects, drank the dew from rock faces and desert plants, and dug burrows under boulders to escape the blazing heat. We were simply small desert lizards, and we had no thoughts at all."

"And then, in the hard radiation, we mutated, again and again!" He took up the story. "I can cry mutation here, Professor, because it is fact. Has to be."

She nodded, and the student went on eagerly:

"Continuing genetic change, from small to great. Evolution, but greatly accelerated. Many strange forms resulted, most without ability to survive for long. But finally came awareness, conscious thought, cause and effect learning. We chose the best habitats. We developed society, cooperative effort. We explored natural forces. We discovered the past, and learned from it."

"And that, at least, we are continuing to do," the Professor said. "We have not yet matched all of man's technology, but we are more

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civilized than he ever became, because we respect the dangers inherent in knowledge misused."

He moved around the desk, touched the adjustment control of the screen. "May I, Professor?"

"You are welcome."

The picture zoomed. A tiny bright speck in the desert landscape became the Pool, sparkling in the morning sun. Beyond it, the dark pillar of the Rock lifted like a finger from the sand. Everywhere the scattered boulders lay, and under them the mouths of burrows, with an apron of sand spread neatly into a hard-packed, level space before each opening.

The colony was busy; or busy after its fashion. A few of the beings still dipped water from the Pool, then went quickly to the boulder shadows where most already sat, sipping carefully from the small bowls, and speaking quietly to neighbors.

"And that, Vibran, is man. Lord of this planet. Reaching out toward the stars, he could not control his own knowledge, and it destroyed him. Now he is grateful for a patch of shade and a bowlful of cool water. He substitutes custom for thinking. He takes his food from the Rock without understanding or questioning how it comes to be there."

The big student shook his crested head.

"Professor, you are a wise and a profound thinker, and we must respect your mind. But I, too, have a mind, and I believe you are drawing your final line too soon."

"Tell me."

"I have watched these beings since the Large One there first came out of the burrow and began to scurry about. He has curiosity. He has initiative. And if he has these things it means that aggressiveness and capacity for thought still reside in the germ plasm of this race. From his behavior I believe he *is* questioning. And everything he does is an irritant to the unthinking complacency of others. When they react to him, and they are already, they too are beginning to think."

"It is a scanty remnant, Vibran. The gene pool is small."

"Granted. But you have said that two other colonies are being maintained."

"But far removed. They are not likely to meet. One occupies a rock slide high on the side of a mountain. The other inhabits a small bit of jungle."

"It was not likely that small desert lizards would see the other side of this planet, or know the universe for what it is. But we have."

The Professor rose from her couch with a smooth, sinuous grace. Nine feet tall she stood, her green body scales, rosy throat and blue crest all contributing to a spectacular figure. She turned her golden eyes on him, her favorite student, who loomed taller still.

"You have imagination, Vibran.

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It is of course possible that man could, in time, again take charge of his own destiny. It is remote, but it could happen. Then how much more likely is it that we, with our clearer vision, greater learning, and careful reproductive selection, should continue to be the dominant, the guiding race, on this planet? Man had his chance. We are doing a better job."

"And will continue, as long as each meets his or her responsibilities. I accept that, of course. Professor, you have the best mind of us all. Have you contributed to the gene pool? What you do for our race should not be confined to thought."

"As you well know, I have produced no eggs. Until now, there had been no one competent to fertilize them."

The student's dark eyes glittered.

"There have been applicants in plenty, I am sure."

"There have been," she acknowledged. "But none that seemed right to me. For me, there must be something more than a worthy gene chart."

The deep blue of the big male's pulsing throat had never been brighter. His tail-tip vibrated suddenly with intense feeling.

"Professor, I have a good chart, and I can think. But more, I have my greatest pleasure in your company. May I fertilize your eggs?"

The golden eyes looked at him calmly. She reached out and

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touched him lightly with one graceful, clawed hand, but she could not prevent the excited quivering of her own tail-tip.

"I have thought of it, Vibran. But there would have to be more. I would want a Permanent Companionship, not a Limited Friendship. Does your thinking include a commitment so large?"

"I would have nothing less," he said promptly. "The entire planet will envy me."

She now saw no reason to conceal her admiration. Her beautiful eyes swept him from flared crest to quivering tail-tip.

"When the planet sees you as I do now, it will envy me as well."

He took a stride and stood beside her. With sudden shyness she turned toward the screen.

"Your Large One is doing something purposeful in the shadow of the Rock. What is it?"

"Each day he does that. He is bringing stones, as large as he can lift, and making a pile by the Rock. By standing on the pile he reaches food higher than any of them ever have before. It is another example of his thinking. I'm sure he never stops."

"You are drawing conclusions on too little data again, Vibran. Give me other evidence."

He adjusted the screen.

"See the green plant rising above the boulder? It is a date palm, and he is responsible for it. As you know, this stretch of desert almost never has rain. The hardiest cacti won't grow here. But there are quick-growing desert annuals, tiny little plants which germinate, grow, flower and seed in a few days, that have persisted in the sand all these many years.

"One brief shower will provide enough moisture for their life cycles. You may not have known, but some fifty days ago there was a shower here. The whole region was colorful when the little plants bloomed. And somehow, from somewhere, there was a dormant date seed that germinated.

"It should have died. But I found that he was watering it! Each night he gave it a bowlful. Now it's so large it gets four bowls. And he no longer steals it from the Pool at night. He takes it openly, in the cool morning, and no one dares stop him. He has learned that the Pool will stay full, no matter how much water is used."

She nodded her head with appreciation.

"Is there more?"

"Another thing. It may be the most important of all. Over in the shadow of that red boulder there is a very old Man. Each day the Large One brings him food, and water from the Pool. Always before, when they could no longer get their own nourishment, they died."

"Responsibility," the Professor said slowly. "Responsibility for a fellow being. Yes, that could be very important indeed."

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* * *

The Old One lay comfortably in the shadow of his boulder. He had had his food. A bowl of cool water rested on his ancient knees, and from time to time he took a reviving sip. His pale eyes, dimmer each day, watched as the Large One toiled at the now massive pyramid of stones beside the Rock. Each day he had built it higher. Each day he had gathered food scales from a new space on the Rock, a space no other being had ever reached.

Always, when the Large One climbed to the top of his pile of stones, he stood for a minute, resting, and looking out across the sand.

The One One knew that the young eyes were seeing the dark shadowy masses where the sand ended, the beginning of another world.

The Old One dreamed. He had often dreamed of that other world, where there might be coolness and much water and many green things. And he knew that the Large One, from his lofty perch, could see more clearly than he ever had.

"He has greater vision than I have had. He sees farther. His will be a better world."

The Old One murmured gently to himself. A contented smile grew on the gray, wrinkled face. The skinny old fingers loosened their grip on the water bowl. The dim eyes closed. And peacefully the Old One died. ★

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Editorial *continued from p. 4*

technology construct orbiting cities in Earth's Lagrangian Points; our own Dr. J.E. Pournelle reported in the September '75 issue of *Galaxy* how we can, with present technology, proceed to terraform Venus; and Dr. Howard L. Forward, Senior Scientist of Hughes Laboratories will be featured in the next issue of *Galaxy* in an article in which he claims it is time to begin construction of unmanned probes to the nearer stars.

Hmm. . .perhaps the best word with which to replace 'earth' would be 'universe.' "Be fruitful, and multiply, and replenish the *universe*. . . ." Could that be what God was getting at? Frankly it seems more in *scale*, as it were, with the Lord of Creation, than his telling us that we must breed and breed and breed on this one lonely little planet until we have converted its entire mass to human flesh!

There is a point to all this, by the way: anyone who both believes in the Old Testament and accepts the validity of the foregoing argument must consider himself as divinely instructed to do all in his power to further the progress of humankind into Space. That means he must do all in his power to further the development of our space capabilities, and that he must resist and defy any person, process or philosophy that acts to the detriment of that goal. For example: conservationism when carried to the extreme of halting technological (not industrial) development; or, at the other end of the spectrum, land-rape or other misuse of resources in such fashion as to detract from the ability of the environment to support an energy-intensive civilization; and then, of course, there's birth control.

The single greatest threat to a technology capable of "replenishing the universe" is over-population; if we double this planet's population just one more time we may not be able to *afford* the technological/economic effort required to get into Space. Therefore, just as when a man of the Middle Ages took the Cross he was given absolution for all sins, mortal or venal, that he had ever committed *or would commit while on crusade*, or as in World War II when an American soldier of the Roman Catholic Faith was allowed meat on Friday, so too should all persons fully committed to the goal of getting the human race into Space be given dispensation to practice family planning. Of course for those who do not make their home on Planet Earth, the injunction will hold full force: be fruitful and multiply!

So. It would seem that man has received his Marching Orders, indeed has been in receipt of them for several thousand years—but is only now capable of truly understanding and implementing them. Or, in the idiom of that earlier Crusade, *Te Veulnt*—God wills it!

—BAEN

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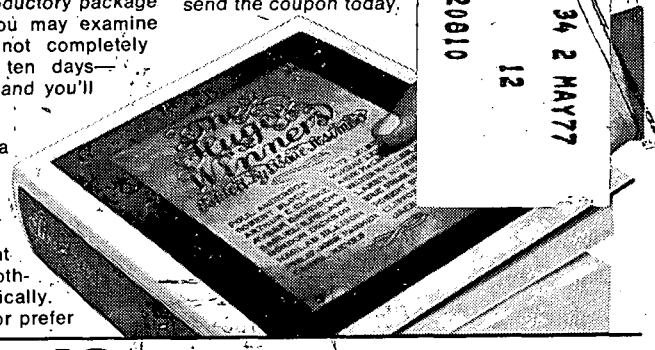

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